EFFECTIVENESS OF HORTICULTURE THERAPY ON DEPRESSION AMONG ELDERLY AT SELECTED OLD-AGE HOME IN MADURAI.

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MASTER OF SCIENCE IN NURSING

APRIL 2015

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CERTIFICATE

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ABSTRACT

Title: Effectiveness of Horticulture therapy on depression among elderly at selected old-age home in Madurai. **Objectives :** To assess the level of depression among elderly at selected old-age home in Madurai. To evaluate the effectiveness of Horticulture therapy on depression among elderly at selected old-age home in Madurai. To associate the level of depression among elderly with their selected socio demographic variables. **Hypotheses :** There is a significant difference in the pre-test and post-test level of depression among elderly at selected old-age home in Madurai. There is a significant association between the level of depression among elderly with their selected socio demographic variables. Modified Martha.E.Roger's Science of Unitary Human Being was adopted for this study. **Methodology:** A pre -experimental one group pre-test post-test design was used. 40 elderly were selected by purposive sampling method. The study was conducted at Inba-Illam, Madurai. Pre-test was conducted on the first day by Geriatric depression scale, after obtaining consent from all the subjects. On the second day Horticulture therapy was given about 45 minutes – once a day for 25 Consecutive days (25 sessions) in the morning in four divided groups for the subjects. Post-test was assessed on 27^{th} day using the same tool. **Findings**: Horticulture therapy reduced the depression levels among elderly in the selected old-age home at Madurai. There was a significant association between post - test level of depression and age, sex and history of illness. **Conclusion:** Horticulture therapy is cost effective, non-invasive, non- pharmacological complementary and alternative therapy to reduce the levels of depression among elderly.

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Introduction

CHAPTER-I

INTRODUCTION

"***You don't heal old age. You protect it; you promote it and you extend it"***.

- Sir James Sterling Ross

Old age should be regarded as a normal inevitable biological phenomenon. One may visualize aging as simple as appearance of wrinkled skin, decreased eyesight, but others may relate it with one's own inner strength and attitude towards life. Therefore, definition of aging has varied among different schools of thoughts. There is also contrast variation in concept of aging in different regions of the world, as they have progressed towards socio economic-techno development. Old age is considered to be near about 70 years, in developed countries where life expectancy is more due to advancement in health care techniques, as compared to developing countries where the old age is considered near about 60 years because of low life expectancy. Globally, 1% of population over age of 60 years is increasing and it is likely to reach 30% of world population by 2050.

According to Census of India (2011), about 7.4% population is over 60 years of age of total population in 2001. For males it was marginally lower at 7.1%, while for females it was 7.8%.This is expected to increase to 17% in 2050. In other words longevity has increased, at which a man can be considered "old". Aging is normal, universal and an inevitable change. It results in decreased capability of geriatric population to compensate and recover from stress. Hence stress is any situation where a non-specific demand requires an individual to respond or take actions.

Advanced age among the elderly has been hypothesized to be a risk factor for depression. Depression is perhaps the most frequent cause of emotional suffering in later life and significantly decreases quality of life in older adults.

It is a common misconception that depression is a normal part of ageing, but the evidence shows that multiple health problems often account for any initial association between depression and older age (Baldwin, 2008; Baldwin, Chiu, Katona, & Graham, 2002). Depression is essentially the same disorder across the lifespan, although certain symptoms are accentuated and others are suppressed in older people. For example, older people with depression typically report more physical symptoms and less sadness compared to younger people with depression. Additionally, psychotic symptoms, melancholia, insomnia, hypochondriasis, and subjective memory complaints are more likely to occur in older people with depression compared to younger people with depression.

The rate of occurrence of depression and its symptomatology in Indian culture have also been investigated. The old age Depression was found to be four times greater in the urban areas as compared to the rural (6.1 and 1.5 per 1000, respectively). Modern civilization, technological complexity and rapidly changing social values seem to be some of the factors contributing to the depressive psycho-pathology. On the other hand, simplicity, intimate social contacts and small community size are probable deterrents for depression, for the rural people. Somatic and psychological manifestations were frequently observed in these people, whereas guilt feelings were rather infrequent.

Depressive disorders constitute one of the major mental health problems. The cross and intra-cultural differences in etiology, clinical features and course and

outcome vary maximally in depressives than in any other mental illness, and epidemiological studies have been a major strategy to delineate the same.

Depression and cognitive impairment are among the most important mental health problems in elderly people. Both conditions have severe consequences, including diminished quality of life, functional decline, increased use of services, and high mortality. Late onset depression and cognitive impairment often occur together, suggesting a close association between them. It is not known, however, whether depression leads to cognitive decline or vice versa. Clinical practice and research evidence suggest that depression precedes cognitive decline in old age. However, inferring a relationship is hampered because most studies on this topic examined only the association between depression and the subsequent development of cognitive impairment. As depression may be an early sign rather than an independent risk factor for cognitive impairment, the temporal relation between depression and cognitive impairment in old age remains unclear.

For the elderly, the role of chronic stress on the aging brain is particularly important. Loss of hippocampal cells with aging is normative in most cases; however the glucocorticoid hyper secretion syndrome is not. It is suspected that the cytological degeneration of amyloid in the hippocampus and neo cortex, including neurofibrillary tangles and neurotic plaques, in addition to organ aging, combine to accelerate glucocorticoid hyper secretion. Thus hippocampal damage from a combination of aging, and other trauma appears to promote glucocorticoid hyper secretion as illustrated by elevated basal cortisol and dexamethasone (DEX) resistance.

Elevated cortisol levels appear to play an important role in memory and affective disorders. Imaging studies with Positron Emission Tomography and Magnetic Resonance Imaging of persons with recurrent depression altered patterns of

activity and decreased volume of the hippocampus, amygdala and prefrontal regions. In major depression, the duration of the symptoms is a stronger predictor of hippo-campal volume loss on MRI than is age. Based on these and other findings, it appears that prolonged stress with concurrent neurobiological changes during aging may accelerate the loss of function and cognition with the end result of an earlier need of health care support due to a declining ability to live independently.

A study by **Sanghamitra Maulik et al**. found that the prevalence of depression was 53.7%. Female sex, illiteracy, higher age, separated/divorced, widowed, poor socio economic status, absence of personal income, staying without spouse, not being consulted for decisions and feeling of ill-being were significant risk factors for depression and a similar study by **Tiwari et al**. found the prevalence of psychiatric morbidity among the geriatric population was 43.32% and in that majority were suffering from neurotic depression, manic-depressive psychosis depression, and anxiety state in descending order of frequency and also found that socially, economically, and educationally disadvantaged subjects were more psychiatrically ill.

Another study by **Paula M. Trief** showed that diabetes had a significant association with depression among the geriatric population and a meta-analysis study by **Cole et al.** revealed that disability, new medical illness, poor health status and female gender were significant risk factors for depression, comparing with these international based studies the present study also had not shown much difference in the prevalence and the factors associated with depression so it is apt to say that depression is a major psychiatric problem not only in developed countries but also among the developing countries like India.

Since Homo-sapiens evolved in a natural environment, an intrinsic physiologic and psychological positive reaction to nature has developed that is

involved in maintaining the human being's homeostasis. Thus, an automatic and subconscious propensity to react to nature in a positive manner is theorized. Organs proposed that there is higher attention response to environmental cues such as trees and natural features associated with landscapes providing sources of food and water.

Horticultural therapy is a relatively new discipline combining horticulture and rehabilitation disciplines. It employs plants and gardening activities in therapeutic and rehabilitation activities to improve human well-being. Historically, the use of horticulture to calm the senses dates as far back as 2000 BC in Mesopotamia. Around 500 BC, the Persians began creating gardens to please all of the senses by combining beauty, fragrance, music (flowing water) and cooling temperatures.

Horticultural therapy (HT) and exposure to gardens has been shown to have positive benefits for the elderly. Indoor gardening has been reported to be effective for improving sleep, agitation, and cognition in dementia patients. As a cognitive therapy, HT helps clients learn new skills and regain lost skills. It is a restorative technique to improve memory, attention, sense of responsibility and social interaction with few to no adverse side effects. Moreover, HT has been found to reduce stress, to increase feelings of calm and relaxation, to foster a sense of accomplishment and to improve self-esteem. As a result of activities in a green setting, there was a significant improvement in self-esteem in nine out of ten case studies.

1.1 NEED FOR THE STUDY

No one can avoid aging, but aging productively is something else.

- Katharine Graham

In 1991, the world population of 60 years and above was 56 million (6.8%). In 1999, it has increased to 70 million and expecting 177 million by 2025. The growth rate of elderly population (37.3%) is twice that of general population (16.8%). One

out of seven elderly in the world is an Indian. Average expectation of life from 60 years in 1991 is expected to reach 70 years by the year 2025. Elderly population statistics in India was 7.7 crores as per census 2001 and it is projected to be around 9.5 corers in 2010. India's older population will increase dramatically over the next four decades. The share of India's population ages 60 and older is projected to climb from 8 percent in 2010 to 19 percent in 2050, according to the United Nations Population Division (UN 2011). By mid-century, India's 60 and older population is expected to encompass 323 million people, a number greater than the total U.S. population in 2012.

One in every four among India's elderly population is depressed, and one in three suffers from arthritis, while one in five cannot hear. India will soon become home to the second largest senior citizens' population in the world. The 60-plus age group population is likely to rise to 100 million in 2013, and 198 million in 2030. The elderly population will account for 12% of the total population by 2025, 10% of whom would be bedridden, requiring utmost care. A majority (80%) of them would be in rural areas, making service delivery a challenge.51% of the elderly population would be women by 2016.

Vink, Aartsen and Schoevers (2008) provided a comprehensive overview of risk factors for late-life anxiety and depression. The review revealed considerable overlap between the risk profiles for anxiety and depression in older people, such as chronic diseases, disability and bereavement. However, the review also found some differences in risk factors for late-life anxiety and depression. Biological factors, including chronic health conditions, cognitive impairment and functional limitations, may be more important in predicting depression. Also, there seems to be a differential effect of social factors on depression and anxiety. For example, stressful events are

important predictors for both anxiety and depression, but traumatic events are predictors for only anxiety.

Baldwin et al., (2002), Menzel, Rodda et al., (2008)depending on the methodology and diagnostic criteria used. Older people living in residential aged care also have a higher rate of anxiety disorders than other groups of older people.

Baldwin et al., (2002) says that there is evidence that depressive disorders and disability are highly correlated the depression rate in older people receiving a high level of support at home is approximately twice as high as less frail community-dwelling older people . Therefore, older people in settings where disability is high, such as residential aged care facilities, hospitals, older people with chronic illness and frail older people at home are at greater risk of depression. Other risk factors identified for late-life depression include a history of depression, low socio-economic status, external locus of control, bereavement, new medical illness, poor self-rated health, being female and being unmarried

Beekman et al., (2000), Cole(2003), Vink et al., (2008) Says that the loss of a significant other, including spouse, family member, close friend, or pet, is also associated with an increased risk of depression in elderly.

A **community-based study in the Netherlands** found that external locus of control was the only common risk factor for pure depression and pure anxiety in later life while family history was associated with concurrent anxiety and depression.

As per **the National Survey of Mental Health and Wellbeing (2007)** found that the 12-month prevalence for depression and anxiety was 2% and 5%,respectively for older people living in private dwellings.

Another Australian study done by **Pirkis et al., (2009)** found that the prevalence of depression was 8.2% among a sample of 22,252 community-dwelling older people. However, the prevalence rate is much higher in residential aged care facilities.

A recent Australian study done by **Snow don& Fleming, (2008**) found that 34.7% of aged care residents suffered from depression.

According to **Cox, Abramson, Devine, and Hollon (2012)** old age is a risk factor for depression caused by prejudice (i.e., "DE prejudice"). When people are prejudiced against the elderly and then become old themselves, their anti-elderly prejudice turns inward, causing depression. "People with more negative age stereotypes will likely have higher rates of depression as they get older." Old age depression results in the over-65 population having the highest suicide rate.

According to the 2006 World Population Prospects, the number of Indians aged above 80 will increase more than six times from existing 78 lakh to about 5.14 crore by 2050. The number of people over 65 years is expected to quadruple from 6.4 crore in 2005 to 23.9 crore, while those aged 60 and above will rise from 8.4 crore to 33.5 crore by 2055. The global population of people aged 60 years and older would more than double, from 542 million in 1995 to about 1.2 billion in 2025.

Globally, the number of older persons (aged 60 years or over) is expected to more than double, from 841 million people in 2013 to more than 2 billion in 2050. Older persons are projected to exceed the number of children for the first time in 2047.The elderly population of India above 65 years: 5.3% (male 29,364,920/female 32,591,030) as per the 2011 census of India and it is projected that in 2015 it would be 1256 million and in 2020 it would be 1332 million. Based on the situational analysis of India 2011.In Tamil Nadu the elderly above 60 yrs. is 8.8% a total persons

of 5507000 among them female population is 27,72,000 and of males is 27.36.000. In that rural population accounts for 32,23,000 whereas urban population is 22,85,000.

Based on the National Institutes of Health (2010) report out of the 35 million people aged 65 or older, about 2 million suffer from full-blown depression. Another 5million suffer from less severe forms of the illness. The prevalence of depression is ranged between 13% and 22% among the elderly. According to the study conducted by Madurai institute of social science in 2010, 80 lakh people aged 60 and above had suffered from depression in Tamil Nadu, in which 72% were females. In Madurai 1 lakh people were affected by depression, in which 80% were females and aged above 60 years. In urban area 62% of women affected by depression belonged to the age group of 60 year.

In the World there were around 354 old age homes in 1997. By 2001 the number of old age home grown to 969.The World prevalence rate of depression among older is 10.3%. The prevalence rate of depression among the elderly in Indian population was determined to be 21.9%. Although there was a significant decrease trend in world prevalence of geriatric depression, but it was significantly higher among Indians in recent years than the rest of the world.

Horticulture therapy is a rehabilitative measure in which plants and gardening activity are used to improve the body, mind, and spirit of the people. It involves four different interventional approaches like "**virtual (effect), viewing, interaction, and action"**. Action performance will be according to the client's ability. Gardening as a form of therapy benefits both mind and body.

For elderly, aging brings declines in cognition and function that may precipitate losing independent living. In general, for those persons with advancing medical and psychiatric problems, declining cognitive and functional changes may

necessitate entering assisted living or dementia residences. In either case, the role of health scientists is to find the most supportive and pleasant environments during these latter chapters of life.

Burgess (2008) Horticulture is the art of cultivating fruit, flowers, and vegetables. It's use as a therapeutic modality. Horticultural activity may be new strategy for elderly to enhance their physical mental, social and cognitive functions. Horticultural therapy is nature oriented and person centered therapy .Horticultural therapy has a pre-defined clinical goal on the basis of clients need and interest. Horticulture and gardening are used by many occupational therapists both to promote the physical wellbeing such as development motor skills, pain control and also to promote social and mental and cognitive wellbeing of elders to develop their social skills, networks and social interactions, particularly for those with mental health problems also improve functional activities.

Horticultural therapy has been used as a mental health treatment modality since the late 1700‟s, as it was found that the involvement with plants and gardening hurried the recovery of psychiatric patients (Peffer et al. 2005). Dr. Benjamin Rush is known as the father of horticultural therapy, he began the first horticultural therapy program in Pennsylvania in 1738. Dr. Benjamin Rush MD, looked at how field labor on a farm had curative effects on patients (Fried & Wichrowski, 2008).

Fried & Wichrowski, (2008) Says that Nature has been used as a therapeutic aid for thousands of years dating back to the Egyptian court physicians who prescribed walking through palace gardens for mentally ill members of royalty. After World War I horticultural activities were utilized with veterans during occupational therapy at Menninger's Clinic. The practice of horticultural therapy when used as an alternative to treat mental health can lend to the reciprocal relationship between a

client and the plant, which can contribute to an increase in recovery for a client's mental health.

Barnicle Midden, (2003) A separate study on the effects of a horticulture activity program for the elderly in a long term care facility found that the horticulture group had a significant increase in current psychological well-being compared to the control group who did not participate in the group.

This study will help psychiatric nurses to identify, various non-pharmacological methods which could be adopted by every old aged person to strengthen the healthy well- being and help to perceive the depression as a manageable event and a challenging task.

1.2 STATEMENT OF THE PROBLEM

"A study to evaluate the effectiveness of Horticulture therapy on depression among the elderly at selected old-age home in Madurai."

1.3 OBJECTIVES OF THE STUDY

- To assess the level of depression among elderly at selected old-age home in Madurai.
- To evaluate the effectiveness of Horticulture on depression among elderly at selected old-age home in Madurai.
- To associate the level of depression among elderly with their selected Socio-demographic variables.

1.4 HYPOTHESES

- **H_1**- There is a significant difference between the pre- test and post- test level of depression among elderly.
- **H_2-** There is a significant association between the level of depression among elderly with their selected Socio- demographic variables.

1.5 OPERATIONAL DEFINITIONS

Effectiveness

In this study, it refers to the extent to which Horticulture therapy decreases the level of depression among elderly as evidenced by decrease in the post test score which is measured by Geriatric Depression Scale (GDS).

Horticultural therapy

In this study, Horticultural therapy (HT) refers to gardening activities like assessing the soil and plants, caring the plants for 45 minutes for 25 consecutive days in the morning followed by sharing their experience with other participants, it helps to improve the psychological wellbeing of elderly .

Depression

In this study, it is the hopelessness, depressed mood, loss of interest in daily activities evidenced by impaired personal and social functioning assessed by using Geriatric Depression Scale (GDS).

Elderly

In this study, it refers to the old age people above 60 years of age.

Old Age Home

In this study, it refers to Inba-illam, the shelter made especially for old age people to stay and continue their life, providing food, clothes and taking care of elderly.

1.6 ASSUMPTION

- Depression is increasingly prevailing among elderly at old age homes.
- Elderly may show interest to participate in horticulture therapy.
- Horticulture therapy may not give any adverse reactions to the elderly.

1.7 DELIMITATION

- Prescribed data collection period is only 4-6 weeks.
- Sample size is limited to only 40 samples residing at Inba-illam old age home in Madurai.

1.8 PROJECTED OUTCOME

- The study helps to know the existing level of depression among elderly residing at Inba-Illam in Madurai.
- Horticulture therapy reduces the level of depression among elderly in the old age home.
- The horticulture therapy helps the elderly to promote a sense of well-being.

Review of Literature

CHAPTER-II

REVIEW OF LITERATURE

A literature review is an objective, thorough summary and critical analysis of the relevant available research and non- research literature on the topic being studied (Hart, 1998).Its goal is to bring the reader up-to-date with current literature on a topic and form the basis for another goal, such as the justification for future research in the area. A good literature review gathers information about a particular subject from many sources. It is well written and contains few if any personal biases. It should contain a clear search and selection strategy (Carnwell and Daly, 2001). Good structuring is essential to enhance the flow and readability of the review. Accurate use of terminology is important and jargon should be kept to a minimum. Referencing should be accurate throughout (Colling, 2003).

In this literatures are grouped under the following headings:

- Literatures related to depression among elderly.
- Literatures related to horticulture Therapy and its effectiveness.
- Literatures related to horticulture on depression among elderly**.**

2.1 LITERATURES RELATED TO ELDERLY DEPRESSION

Shankar, Radhakrishnan, Abdul Nayeem (2013) conducted study on the prevalence of depression and the factors influencing depression among the geriatric population in a rural area in Tamil Nadu. A cross sectional study was conducted among 400 geriatric populations at Attayampatti village in Salem district. A validated depression assessment scale was used to assess their depression status and the various demographic factors like age, sex, education, monthly income, spouse living status

were analyzed to see for any association with depression. Among them 41.2% were normal, 37.8% were having mild depression and 21% were severely depressed. Demographic factors such as advanced age, sex, education, monthly income, spouse living status, history of chronic ailments and smoking showed a statistically significant association with depression.

Christos Kleisiaris, Maria Maniou, Ioanna Papathanasiou, Adrianna Sfiniadaki, Eda Collaku, Chrysa Koutsoumpa, Pavlos Sarafis (2013) conducted the study to identify the prevalence of depressive symptoms in an elderly population and their relation to life situations in home care. The sample consisted of 200 elderly of 4 nursing homes in Heraklion of Crete. The study was conducted with the quantify-descriptive method. Depression was quantified using the Zung Self-Rating Depression Scale (ZSDS). Analysis included the test x^2 analysis, the r-Pearson partial correlation coefficient and the calculation of Cronbach's alpha (α). The data analysis was performed using the statistical programme IBM SPSS 19.0. Cronbach's alpha for the ZSDS questionnaire was 0.81. Most of sample were female (64.5%), aged above 80 years (68.5%), with low level of education (90.5%). The prevalence of depressive symptoms was 58.5%. A significant statistically correlation appears in the elderly with cardiovascular diseases (P-value = 0,001), already diagnosed depression (P-value < 0,005), self-care (P-value = 0,001), living with spouse (P-value = 0,011) indicating greater depressive mood. Moreover, loss of child increases the degree of depression (P-value = 0,037).

Ankur, Barua, NilamadhabKar (2010) did a study to determine the prevalence of depression among the elderly population of rural areas of Udupi district, Karnataka, India and to determine the validity and reliability of WHO (five) Well-being Index (1998 version) as a screening instrument to identify depressive disorders

in elderly Population in this Indian setting. This cross-sectional study was conducted over a period of eight months in the three taluks of Udupi, Kundapura, and Karkala; belonging to the Udupi district of South India. 627 people in the age group of 60 years and above were used by simple random sampling, without replacement method, using the probability proportionate to size (PPS) technique was used. The WHO (five) well-being index (1998 version) was validated and the *P* value<0.05 was considered statistically significant. The prevalence of depression in elderly population was determined to be 21.7% (95% CI = 18.4 - 24.9). The Indian version of WHO-five well-being index (1998 version) showed a sensitivity of 97.0%, specificity of 86.4%, positive predictive value of 66.3% and an overall accuracy of 0.89. The Kappa statistics showed significantly high reliability of *k = 0.71*.

A. P. Rajkumara, P. Thangaduraia, P. Senthilkumara1, K. Gayathri1, M. Princea and K. S. Jacoba (2008) conducted a study to assess the prevalence and factors associated with geriatric depression in a rural south Indian community. In this they recruited 1000 participants aged over 65 years from Kaniyambadi block, Vellore, India. They adopted a case control framework to study the factors associated with geriatric depression and found the Prevalence of geriatric depression (ICD-10) majority 12.7% (95% CI 10.64–14.76%). Low income (OR 1.78; 95% CI 1.08–2.91), experiencing hunger (OR 2.58; 95% CI 1.56–4.26), history of cardiac illnesses (OR 4.75; 95% CI 1.96–11.52), transient ischemic attack (OR 2.43; 95% CI 1.17–5.05), past head injury (OR 2.70; 95% CI 1.36–5.36) and diabetes (OR 2.33; 95% CI 1.15–4.72) increased the risk for geriatric depression.

S.S. Biswas, R. Gupta, H. A. Vanjare, S. Bose, J. A.Patel, S. Selvarajan, J. Aaron, E. Nitya, D. S. Iyer, N. S. M. Jacob, K. R. John and K. S. Jacob (2008) did a study conducted to identify depression and common mental disorders in the elderly

in Vellore, South India**.**204 subjects aged over 60 years were selected for the study by systematic random sampling. The prevalence of depression and common mental disorder, using the Clinical Interview Schedule -Revised standard, was found to be 31.5%. The two-question screen has a sensitivity of 93.8% and specificity of 48.2%.

J. K. Djernes (2006) conducted a study to offer an update on prevalence and predictors of old age depression in populations of elderly Caucasians. The databases MEDLINE and Psych info were searched and relevant literature from 1993 onwards was reviewed. The prevalence of major depression ranges from 0.9% to 9.4% in private households, from 14% to 42% in institutional living, and from 1% to 16% among elderly living in private households or in institutions; and clinically relevant depressive symptom 'cases' in similar settings vary between 7.2% and 49%. The main predictors of depressive disorders and depressive symptom cases are: female gender, somatic illness, cognitive impairment, functional impairment, lack or loss of close social contacts, and a history of depression.

Ruoling Chen, Zhi Hu, Li Wei and Kenneth Wilson (2005) did a study to investigate the association between socioeconomic status and mortality in people with dementia and late-life depression in China. Using Geriatric Mental Status - Automated Geriatric Examination for Computer Assisted Taxonomy (GMS-AGECAT) interviewed 2978 people, aged ⩾ 60 years among them 223 were diagnosed with dementia and 128 with depression. All-cause for mortality was followed up over 5.6 years. It revealed that Individuals with dementia living in rural areas had a three times greater risk of mortality (multivariate adjusted hazard ratio (HR) = 2.96, 95% CI 1.45-6.04) than those in urban areas, and for those with depression the HR was 4.15 (95% CI 1.59-10.83). There were similar mortality rates when comparing people with dementia with low *v.* high levels of education,

occupation and income, but individuals with depression with low *v.* high levels had non-significant increases in mortality of 11%, 50% and 55% respectively.

S. G. Riedel-Heller, A. Busseand M. C. Angermeyer (2005) carried out a study on the prevalence of mental disorders in old-age focusing on surveys conducted in the 15 countries. A systematic search of the literature published from 1990 onwards. Mental disorders in old-age are common. The most serious threats to mental health in old-age are posed by dementia and depression. It is a clear cut finding that dementia exponentially increases with age. The basic issue of whether depression increases or decreases with age remains unsolved. Databases on substance use, mild cognitive impairment, psychotic syndromes, anxiety, and somatoform disorders in old-age are much smaller, making conclusions difficult to draw. The prevalence of depression and common mental disorder, using the CIS-R standard, was found to be 37.5%.

Martin G. Cole, Asmaà Mansour (1999) conducted to determine the prognosis of depression in elderly community and primary care populations. Medline and Psyc INFO were searched for potentially relevant articles published from January 1981 to November 1996 and from January 1984 to November 1996, respectively. Twelve studies met the following five inclusion criteria: original research, published in English or French, study population of community residents or primary care patients, subjects' mean age 60 years and over. A meta-analysis of outcomes at 24 months estimated that 33% of subjects were well, 33% were depressed, and 21% had died. Physical illness, disability, cognitive impairment, and more severe depression were associated with worse outcomes but inconsistently so.

P.A.Saunders, J.R.M.Copel and, M.E.Dewey, C.Gilmore, B.A.Larkin, H.Phaterpekar and A.Scott (1993) have done a study to understand the prevalence

rates of psychiatric disorders in the elderly are presented from the initial cross-sectional stage of a longitudinal community study of the incidence of dementia ,depression and neurosis in the city of Liverpool. An age and sex-stratified random sample of 5222 subjects aged ≥65 was interviewed at home using the Geriatric Mental State-AGECAT package to provide computer diagnoses. The overall age-standardized prevalence rates for organic disorder (4.7%) depressive illness (10.0%) and the neuroses (2.5%) are consistent with levels found in previous smaller studies that have used. Each of these diagnoses is more common in females than males. A rise in organic disorder with age is confirmed as continuing into the oldest age groups for both sexes. An apparent decline with age observed for depression and neurosis diagnoses disappears when organic cases are excluded from the analysis.

Gail M. Williamson and Richard Schulz (1992) a study conducted on pain, activity restriction, and symptoms of depression among community-residing elderly adults for this Relations among physical illness, functional disability, pain, and symptoms of depression were investigated in a sample of community-residing elderly outpatients. As expected, physical illness, functional disability, and pain were correlated with depressive symptomatology. It was further hypothesized that functional disability (but not physical illness per se) would attenuate the relation between depressed affect and pain. The data supported these predictions by showing that functional disability (but not physical illness) accounted for differences in reported pain between non-depressed subjects and those at risk for developing clinical depression. Additional analyses revealed that functional disability mediated relations between pain and depressed affect and also between illness and depressed affect. These results indicate that both pain and illness are important contributors to

functional disability, which in turn contributes to symptoms of depression in the rate of 42.6% of elderly.

Patricia A. Parmelee, Ira R. Katz and M. Powell Lawton (1989) did study on the relation of pain to depression among institutionalized aged at a Nursing home and congregate apartment residents (N = 598) were classified on the basis of a DSM-IIIR symptom checklist as suffering possible major, minor, or no depression. They also completed the Geriatric Depression Scale (GDS) and the Profile Of Mood States (POMS). Possible major depressives reported more intense pain and a greater number of localized pain complaints than did minor depressives; non-depressed individuals reported the least intense pain and fewest localized complaints. The effect remained strong even when functional disability and health status were controlled statistically. Both pain intensity and number of localized complaints were correlated with GDS and POMS factor scores, but strength and direction of associations varied with level of depression. Item-by-item examination of localized complaints again indicated that more depressed individuals were more likely to report pain, particularly where physicians had identified a physical problem that might account for the pain.

Patricia A. Parmelee, Ira R. Katz and M. Powell Lawton (1988) performed a study for the assessment and prevalence estimation of depression among institutionalized aged. In the study aged nursing home and congregate apartment residents were screened for symptoms of depression and cognitive impairment. 708 survey respondents, 12.4% met DSM-IIIR criteria (33) for major depression; about half this group also displayed significant cognitive deficits. Another 30.5% of the total sample reported less severe but nonetheless marked depressive symptoms. Such "minor" depressive syndromes were much more common among congregate housing than nursing home residents. Possible major depression was more prevalent among

newly admitted residents of both housing components. Comparison of cognitively impaired versus intact respondents revealed that the two groups' self-reports of depression were equally internally consistent, and bore equivalent correlations with observer ratings made by interviewers and direct care staff. Checks of medical records of a group of survey non-respondents (n = 203) indicated that, excepting the extremely demented, the active sample of 708 accurately represents institution residents as a whole. Finally, comparison with clinical diagnoses made by facility psychology and psychiatry department staff indicated good concurrent validity of research screening measures and methods.

2.2 LITERATURES RELATED TO HORTICULTURE THERAPY AND ITS EFFECTIVENESS

Farida Perveen (2013) conducted the study on Effects of Horticulture Therapy for Elderly With Dementia in an institutional setting. The results showed that horticulture therapy has great impacts on the wellbeing's of elder´s. Social support networks are important in the prevention of cognitive dysfunction and functional decline basically the demented person. people–plant interactions promote well-being of the Elders, and this inter-action is very important not only for cure but also as a preventive treatment for individuals as well as groups which were enhancing life satisfaction, reducing loneliness and promoting activities of daily living. The findings were presented positive effects on pain and stress reduction, improve fatigue and mood and increase social interaction, relaxation and environmental benefits which demonstrated positive intervention in dementia care.

Martin.L. Verra, FelixAngst, Trudi Beck, Susanne Lehmann, Roberto Brioschi, Renata Schneiter, André Aeschlimann (2012) conducted a study to determine whether the addition of horticultural therapy to a pain-management

program improved physical function, mental health, and ability to cope with Musculo-skeletal pain. The research team designed a prospective, non-randomized, controlled cohort study, enrolling all patients consecutively referred to the Zurzach Interdisciplinary Pain Program (ZISP) who met the study's criteria. The team divided them into two cohorts based on when medical professionals referred them before (control group) or after (intervention group) introduction of a horticultural therapy program. Seventy-nine patients with chronic musculo-skeletal pain (fibromyalgia or chronic, nonspecific back pain) participated in the study. The research team compared a 4-week, inpatient, interdisciplinary pain-management program with horticulture therapy (intervention,(n = 37) with a pain-management program without horticultural therapy (control, n = 42). The horticultural therapy program consisted of seven sessions of group therapy, each of 1-hour duration. On discharge, the research team measured small to moderate outcome effects (effect size (ES) up to 0.71) within both groups. The study found significantly larger improvements for the horticultural therapy group vs the control group in SF-36 role physical (ES = 0.71 vs 0.22; *P*= .018); SF-36 mental health (ES = 0.46 vs 0.16; *P* = .027); HADS anxiety (ES = 0.26 vs 0.03; *P* = .043); and CSQ pain behavior (ES = 0.30 vs–0.05; *P* = .032).

Beela Manoj, Reghunath BR (2010) conducted a study to evaluate the impact of horticulture therapy in developing self-esteem and motor skills in physically challenge. Fifty physically challenged children in the age group of 12-18 years were selected using purposive sampling. Motor skills of the children were studied using an observation schedule by inter observer agreement method. Assessment of self-esteem of the sample was done using a rating scale. The tools were constructed and standardized. Horticulture therapy included goal specific activities along with raising a vegetable garden. The data collected before and after horticulture therapy was

analyzed using paired sample ‘t’ test. The results revealed that there is significant impact on the development of self-esteem and motor skills in challenged children after attending the horticultural therapy programme.

Christina M. Gigliotti, Shannon E. Jarrott, Jeremy Yorgason (2010) conducted an exploratory study investigated differential responses of persons with dementia to three types of Horticulture Therapy activities: cooking, crafts, and planting. Horticulture Therapy activities three times per week at an adult day service (ADS) program over a nine-week period. Observational data for each participant were collected during HT and more traditional ADS activities at five-minute intervals using a modified Dementia Care Mapping (DCM) technique. Predominant behavior aneffect of each timeframe were recorded for participants. High levels of positive affect and engagement were observed during all of the categories of HT activities, but no significant differences were found between the three categories of HT activities. While levels of engagement in the presented HT and traditional activities were similar, the percentage of time spent doing nothing was lower during HT than traditional activities. Affect was more positive during HT than traditional activities. The current study lends support to the value of HT activities for participants with dementia regardless of the HT modality employed.

Park and Mattson (2009) looked at how plants in hospital recovery rooms were found to have an impact on therapeutic influences in recovery. The study showed 93% of patients responded positively to recovery reporting less ratings of pain distress. A study on three modalities of the everyday work involved in gardening, investigated analyzing encounters that are revealed through multi-sensorial engagements and emotional attachments. The 160 participants were a panel of self-selecting respondents who replied that gardening was pleasurable.

Borg and Davidson (2008) investigated how individuals with severe mental illness experienced the impact on their daily lives and how they overcame these challenges and other barriers to finding their valued social roles as members of their community. The 13 participants were interviewed about everyday life and how relationships within the community were formed. Everyday life activities include going for a walk in the park or in the woods, gardening, and bicycling. According to the study, adults in this population found these activities challenging socially. The results showed horticultural activities, in addition to everyday life activities, were effective for the participants. When participants described things they could do to make life easier, they mentioned examples like the intense pleasure of standing under a tree and enjoying nature, meditation, music, and gardening.

Kowloon (2008) A study conducted to review the therapeutic effect of an indoor gardening programme for older people living in nursing home at school of nursing, the king kong polytechnic university. Aim is to explore the activities of daily living and psychological well-being of elderly people living in nursing home and also examine the effectiveness of a gardening programme in enhancing socialization and life satisfaction, reducing loneliness and promoting activity of daily living for older people living in nursing home. This was the quasi experimental pre-test post-test control group design. The older people from the nursing homes were invited to join the eight week indoor gardening programme, while older people in other nursing home were treated as the control group; they received regular care without the eight week indoor gardening programme. The result were significant improvements in life satisfaction and social network and a significant decrease in perception of loneliness for older people in the experimental group after the eight week indoor gardening

programme, while the activity of daily living were unchanged for both group after the programme.

Ingrid Söderbac, Marianne Söderström (2008) conducted a study regarding Horticulture Therapy and its beneficial effects on brain functions in Cerebrovascular Diseases at Tokyo University of Agriculture. Five patients in Ishikawa Hospital with cerebrovascular diseases were invited to participate in HT for a month in addition to their routine medication and physical therapy (PT). The Functional Independence Measure (FIM) and the Self-Rating Depression Scale (SDS) were performed before and after HT to assess the patients' physical activities of daily living (ADL) and to determine the patients' mental changes in depressive states, respectively. The HT consisted of three steps imagining nature, designing a flowerbed, and actually planting a tree. The ADL of all patients significantly improved after HT; however, the depressive states in all patients did not change remarkably after the HT. These findings suggest that HT can accelerate an improvement of activities in the "visual and color processing areas" and the "association areas" as well as the sensory-motor areas of the brain in the patients with cerebrovascular diseases.

Muthiaya Srinivasan (2008) conducted a qualitative study regarding the effectiveness of horticulture therapy in integrating people with mental illness into the society at Sri Lanka. 45 mentally ill people attended therapeutic activities on regular basis such as plant cultivation, fruits and vegetable cultivation, landscaping, mushroom cultivation, Compost making and making cement pots. Evidence shows that horticulture activities are able to improve mental well-being of people with mental illnesses as therapeutic interventions, when they are involved in those activities for a sufficient period, depending on the status of their illnesses. The

impacts are visible in the improvements of their involvement in daily activities and personal hygiene, and in reduction of symptoms.

Elisabeth Schälander (2004) done a study to review the literature on horticultural therapy and describe the Danderyd Hospital Horticultural Therapy Garden and its associated horticultural therapy programme. The literature review is based on the search words 'gardening', 'healing garden' and 'horticultural therapy'. Forty-six patients with brain damage participated in group horticultural therapy. Horticulture therapy included the following forms: imagining nature, viewing nature, visiting a hospital healing garden and, most important, actual gardening. It was expected to influence healing, alleviate stress, increase well-being and promote participation in social life and re-employment for people with mental or physical illness. This study gives a broad historic survey and a systematic description of horticultural therapy with emphasis on its use in rehabilitation following brain damage. Horticulture therapy mediates emotional, cognitive and/or sensory motor functional improvement, increased social participation, health, well-being and life satisfaction.

S. Lee, M.S. Kim, J.K. Suh (2010) a group horticultural therapy program (HTP) for battered women in Korea was conducted and its effectiveness tested. The activities in the HTP were selected to increase self-esteem and decrease depression of the participants. The major finding was that the self-esteem scores of the 12 battered women in the experimental group significantly increased self-esteem and the depression scores significantly decreased after the intervention in comparison of pre- and post-treatment. In addition, the change in levels of self-esteem and depression in the experimental group were significantly different better from those of the 12 the

subjects in the control group. The HTP activities were helpful to enhance self-esteem and mental health for battered women in Korea.

2.3 LITERATURES RELATED TO HORTICULTURE THERAPY ON DEPRESSION AMONG ELDERLY

Pramitha, Kiran (2011) conducted a study to assess the effectiveness of horticulture therapy on level of depression among old age population in a selected old age home. A Quantitative, evaluative approach and one group pre- test, post- test, pre-experimental research design were used. A total of 30 samples were selected from St. Hendry's home for aged by non- probability, convenient sampling technique. The finding showed that the mean post-test level of depression score was lesser than the mean pre-test score. There was no significant association between mean pre-test depression score and their selected demographic variables (gender, previous occupation and marital status). Hence the researcher concluded that the horticulture therapy is effective to decrease the level of depression among old age population in old age home. The analysis shows that 66.67% of the samples were in the age group of 61-65yrs. 50% of samples were males and 70% of samples had primary education. 56.66% samples were widow/widower, 50% had no children and 86.67% of samples came to the old age home voluntarily.

Colin, Morgan (2009) conducted a study regarding the therapeutic horticulture in clinical depression at Norwegian university of life sciences, This study assesses change in depression severity and perceived attention capacity of clinically elderly depressed person during a 12 week therapeutic gardening program. The BECK DEPRESSION INVENTORY (BDI) and ATTENTIONAL FUNCTIONAL INDEX (AFI) were administered at baseline, twice during 4, 8, weeks and immediately after the intervention 12 weeks. The mean BDI score decline 9.7 point from pre-test (27.3)

to post test (p<.001) and were clinically relevant (delta BDI. Or =6) for 72% of cases. the mean AFI score increased 10.2 points from pre-test (68.8) to post test (p=.06). The result shown greatest change in BDI and AFI scores occurred in the initial week of the intervention. Therapeutic gardening may decreased depression severity and improves perceived intentional capacity.

Austin, Johnston, and Morgan (2006) investigated community gardening at a senior center and found there was an impact on functional health, depression, and physical fitness. All participants experienced improved function for physical fitness, feelings, change in overall health, social support, social activities, and quality of life. Social activities were statistically significant (p=. 046) and 100% (n=6) reported their physical and emotional health had not limited their social activities with family, friends, neighbors, or groups.

Nalini.M (2006) conducted a study on the prevalence of depression among institutionalized elderly and the effect of horticulture therapy in selected old age home in Mangalore. An evaluatory approach with one group pre-test post –test design was adopted for this study. Simple random sampling was used for the selection of four old age homes in mangalore.430 inmates, above the age of 65 years from four selected old age homes were assessed for estimating prevalence rate of depression by Geriatric depression scale. Purposive sampling was used to select the samples for horticulture therapy. The first 50 inmates of abhaya-ashraya old age home who scored above 10 by GDS were selected for horticulture therapy. Pre-test was administered using Hamilton Rating Scale for depression on 50 inmates of abhaya-ashraya. The participants attended daily session of 45 minutes of horticulture therapy for 25 days. On 26th day post test was administered by Hamilton Rating Scale for depression to the participants after horticulture therapy. The results have shown the prevalence rate of

depression was high (65.5%) among institutionalized elderly. Similarly the mean-post-test depression score was lower than the mean pre-test depression scores (tn(49)=1.873 p>0.05).

CONCEPTUAL FRAMEWORK

Martha.E. Rogers' nursing paradigm, the Science of Unitary Human Beings provided the theoretical framework for this study. Four main concepts form the foundation of the Science of Unitary Human Beings: 1) energy field, 2) openness 3) pattern and patterning, and 4) pan dimensionality.

Rogers (1992) says that person and environment do not have energy fields, they are energy fields. All matter is made of subatomic particles. Subatomic particles continuously transform from matter to energy, creating continual, dynamic interaction. This interaction is the energy field. The energy field is electromagnetic in nature, composed of moving waves of subatomic particles.

The meta paradigm concepts of human beings and environment are represented by the science of unitary human beings concepts of energy field, openness, pattern, Pan –dimensionality and Homeodynamics. The energy field has Human energy field and environmental energy field. The concept of homeodynamics has three dimension-resonancy, helicy and integrality.

The Human energy Field

It is defined by Rogers as an irreducible, indivisible, Pan-dimensional energy field identified by pattern and manifesting characteristics that are specific to the whole and which cannot be predicted from knowledge of parts.

In this study The Unitary Human Being refers to the clients above the age of 60 years and living in the old age home.

Environmental Energy Field

According to Rogers Environment and Environmental Field is defined as an irreducible field and indivisible, Pan-dimensional energy field identified by pattern and integral with the field.

In this study environmental field refers to changes in living situation, suffering from chronic physical illness, death of spouse and friends social isolation, Physical weakness and loneliness which is developed from all dimensions.

Openness

Openness is defined by roger as human and environment are continuous process and are open system and human field and environmental field are constantly changing their energy. In this study it says green environmental field has impact on human field.

Pan dimensionality

Pan dimensionality provides for an infinite domain without limit and it speaks about all dimensions of health including physical, Mental and social.

Pattern

Pattern is defined as the distinguishing characteristic of an energy field perceived as a single wave and can lead to pattern manifestations.

In this study it refers to the loneliness and prolonged sadness and results in physical, physiological, emotional, social and behavioral manifestations Homeodynamics includes three dimensions.

- **Integrality:** Integrality emphasizes the nature of relationship between the human and environmental fields. In this study integrality refers to which is on-going and which happens over life-time. In the present study it can be manifested as client's impaired interaction to the environment.
- **Resonancy:** Resonancy speaks the nature of change in the human environmental fields. In this study it can be the fluctuating emotional status and sleep pattern.
- **Helicy:** Helicy deals with the nature and direction of change in the human environmental field. In this study it refers to the pathway towards old age.

Unitary human Health

Unitary human Health is a good health of a human field which has less impact of any pattern manifestations. In this study the elderly feels comfortable and relaxed.

Nursing Practice

Nursing practice is the process by which body of theoretical knowledge is used for assisting human being. It is a science that is humanistic and humanitarian.

It includes

- **Pattern appraisal**

Pattern appraisal deals with identifying the pattern manifestations shown by the human field. In this study it is done using the Geriatric depression scale.

- **Mutual Patterning**

Mutual Patterning is to participate in the process of change by provision of complementary therapy so that people may benefit. In the present study horticulture therapy was given to the elderly.

- **Evaluation**

A complete pattern appraisal is repeated in the evaluation phase. In the present study it is done using the Geriatric depression scale to reassess the level of depression and to find the reduction in the depression scores.

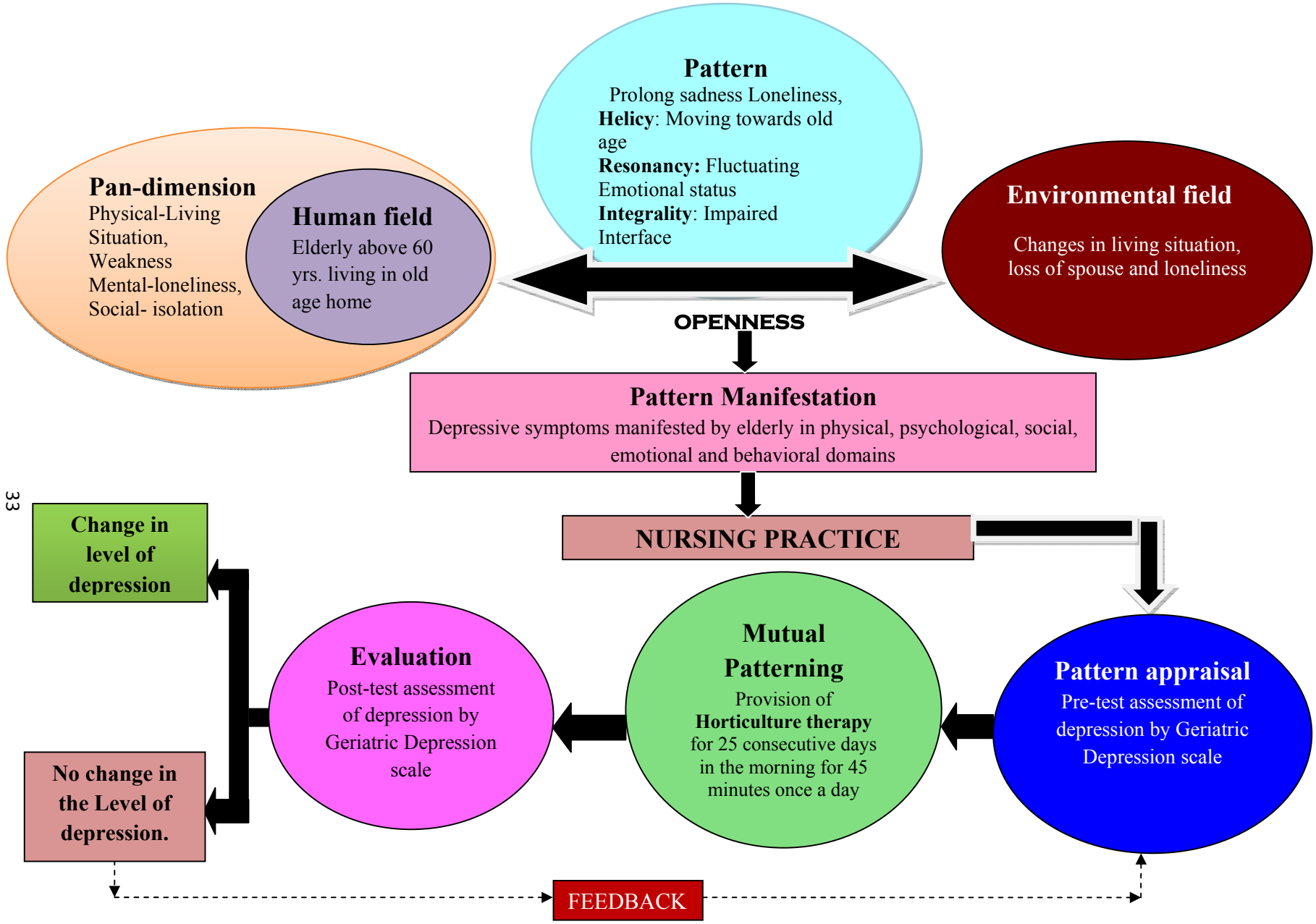

Figure.1 Conceptual Frame work based on Modified Martha. E. Roger's Science of Unitary Human Being (1992)

Methodology

CHAPTER - III

RESEARCH METHODOLOGY

The methodology of the research indicates the general pattern of organizing the procedure of gathering valid and reliable data for the problem under investigation. This methodology of the study includes research approach, research design, variables, setting of the study, population, sample and sampling technique, sampling criteria, development and description of the tool, content validity and reliability of the tool, procedure of horticulture therapy, pilot study, data collection process ,plan for data analysis and the protection of human rights. On the whole it gives a general pattern of gathering and processing the research data.

3.1 RESEARCH APPROACH

In this study the effectiveness of horticulture therapy on depression among elderly was evaluated hence a Quantitative approach was used in this study.

3.2 RESEARCH DESIGN

The research design selected for this study was Pre experimental one group pre-test – post-test design. There was manipulation for the subjects without a control group and randomization.

Pretest	Intervention	Post test
O_1	X	O_2

O_1 - Pretest level of depression among elderly assessed by Geriatric Depression Scale on the 1st day.

X - Horticulture therapy which is given for 45 minutes once a day for 25 consecutive days in the morning.

O_2 – Post-test level of depression among elderly assessed by Geriatric Depression Scale was conducted on 27th day.

3.3 RESEARCH VARIABLES

Independent variable

Horticulture therapy.

Dependent variable

Level of depression.

Socio-demographic variables

Age, sex, religion, personal income, marital status, number of children, Employment of children, Nature of admission to old age home duration of stay, Performance of activities, History of Illness and taking medicines.

3.4 SETTING OF THE STUDY

The study was conducted at old age home named, InbaIllam, Pasumalai in Madurai. It is run with the support of Help Age India, social agency. It is governed by private concern. Accommodation capacity of the old age home was fifty. Currently there were fifty inmates. (Among them 30 were Females and 20 were males).The home has shared Accommodation for inmates with all facilities.

The inmates actively participate in cooking, dining and gardening activities. It provides medical facilities by in connection with certain special hospitals and it also has provision for recreation like watching TV. They have place for religious activities like prayer, and for meeting and family sessions. The home is situated 8 kilometers away from college of nursing, Madurai Medical College, Madurai.

3.5 POPULATION

TARGET POPULATION

Elderly people residing in old age homes.

ACCESSIBLE POPULATION

It refers to the elderly residing atInba-Illama old-age home, pasumalai, in Madurai.

3.6 SAMPLE

Elderly those who reside atinba-illam and who fulfilled the inclusion criteria.

3.7 SAMPLE SIZE

The sample size was 40.

3.8 SAMPLING TECHNIQUE

Non-probability purposive sampling technique was used for the study. 40 elderly individuals who fulfilled the sampling criteria were included in the study.

3.9 CRITERIA FOR SAMPLE SELECTION

The study sample was selected by the following inclusion and exclusion criteria.

INCLUSION CRITERIA

- Elderly irrespective of sex.
- Elderly those who can understand either Tamil or English.
- Elderly those who can walk and able to do their activities of daily living.

EXCLUSION CRITERIA

- Elderly who were not available at the time of data collection.
- Elderly who were critically ill.
- Elderly with physical and mental disabilities.

3.10 RESEARCH TOOL AND TECHNIQUE

TECHNIQUE

The technique to be used in this study is structured interview method.

3.11 DESCRIPTION OF THE INSTRUMENT

The tool consists of two sections.

SECTION A: Socio-Demographic Variables.

This section deals with the socio-demographic data in relation to Age, sex, religion, personal income, marital status, number of children, Employment of children, Nature of admission to old age home duration of stay, Performance of activities, History of Illness and taking medicines.

SECTION B: Geriatric Depression Scale developed by yesavage JA, Brink TL Rose TL, et al (15 points).

The investigator collected the data by structured interview method. It is YES or NO question type. The items were assessed by the tool scores, which were given based on the nature of questions that is in positive manner for positive type questions and in reverse manner for the negative aspect questions. The tool consisted 15 items, among which 10 items were positively scored and the remaining 5 items were scored reversely.

The grading of level of depression was as follows;

LEVEL OF DEPRESSION	SCORES
Normal	0 – 4
Mild	5 - 8
Moderate	9-11
Severe	12– 15

3.12 RELIABILITY OF THE TOOL

The reliability of an instrument is the degree of consistency with which it measures the attribute and it is supposed to be measuring over a period of time. The Tool was a standardized one. Test re-test method was used to assess the internal consistency which reached a satisfactory reliability score of r = 0.84. Hence the tool was reliable and was used in this study.

3.13 VALIDITY

The tool was validated by 5 experts from the field of Psychiatric nursing, psychiatrist and clinical psychologist. The experts were requested to check the relevance, sequence and adequacy of the items in the interview schedule.

3.14 PILOT STUDY

A pilot study was conducted at an old age home in sellur among 10 elderly (who were not included in the main Study) who fulfilled the inclusion criteria with regard to the setting, with the cooperation of the people and the availability of the sample, in a manner in which a final study would be done. It was carried over for the period of 7 days from 1.08.2014 to 7.08.2014. The findings of the pilot study revealed that the study was feasible and practicable. The structured interview schedule was found to be appropriate for the study. Data were analyzed to find out the practicability to conduct the study. The pilot study findings revealed that the study was feasible and practicable.

3.15 PROCEDURE FOR DATA COLLECTION

Method of data collection

- A formal permission from the Principal College of Nursing the Ethical committee of Government Rajaji Hospital, Madurai, Institutional Review Board (IRB),H.O.D, Department of psychiatry Government Rajaji Hospital, Madurai, and also from the old age home authority was obtained.
- The investigator after explaining the purpose of the study after that oral and written consent was obtained from each subject.
- The study participants were assessed for the level of depression using Geriatric depression scale as a pre-test.
- 40 subjects were divided in to 4 groups including 10 for each group.
- Horticulture therapy was given to each group, 45 mins once a day for 25 consecutive days in the morning for each group.
- The pre-test was conducted on the first day after obtaining consent from the participants lasting for 20 minutes for each participant.
- Second day onwards the therapy was given among to the participants having depression as measured by the scores on Geriatric depression scale. The therapy was continued for 25 consecutive days.
- The post - test was conducted on the 27th day.
- The data collection period was 4-6 weeks from 12.8.14 to 15.9.14.

GROUP A	GROUP B	GROUP C	GROUP D
8 AM-9 AM	9AM-10 AM	10AM-11 AM	11AM-12 PM

- **Procedure of horticulture therapy.**

Steps	Activities	Duration (minutes)
1	**Assess the soil**	5
2	**Assess the plant** (for Dry petals, Dry leaves)	10
3	**Care the plant** (Watering the plants daily, Removing withered petals and flower stalks)	10
4	**Observe the plant(**Watching new tender leaves, buds and flowers, Counting the same and reporting to the researcher, walking in the garden**)**	10
5	**Share the experience with other participants**	10
	Total	45

3.16 PLAN FOR DATA ANALYSIS

The data collected was analyzed by means of descriptive statistics, and inferential statistics.

DESCRIPTIVE STATISTICS

- Frequency, Percentage distribution was used to describe the socio-demographic variables of the elderly at Inba-illam old age home in Madurai.
- Mean and standard deviation was used to compute the depression among elderly at Inba-illam old age home in Madurai.

INFERENTIAL STATISTICS

- Paired t-test was used to examine the effectiveness of horticulture therapy on depression among elderly at Inba-illam old age home in Madurai.
- Chi-square test was used to analyze association between level of depression among elderly with their selected socio-demographic variables.

3.17 PROTECTION OF HUMAN RIGHTS

The investigator obtained approval from dissertation committee of College of Nursing, The Ethical committee of Government Rajaji Hospital, Madurai, Institutional Review Board(IRB), HOD of Department of psychiatry Government Rajaji Hospital, Madurai and from the secretary of Inba-Illam Old Age Home, Madurai, Both verbal and written consent was obtained from all the participants. Confidentiality and Anonymity was maintained throughout the study.

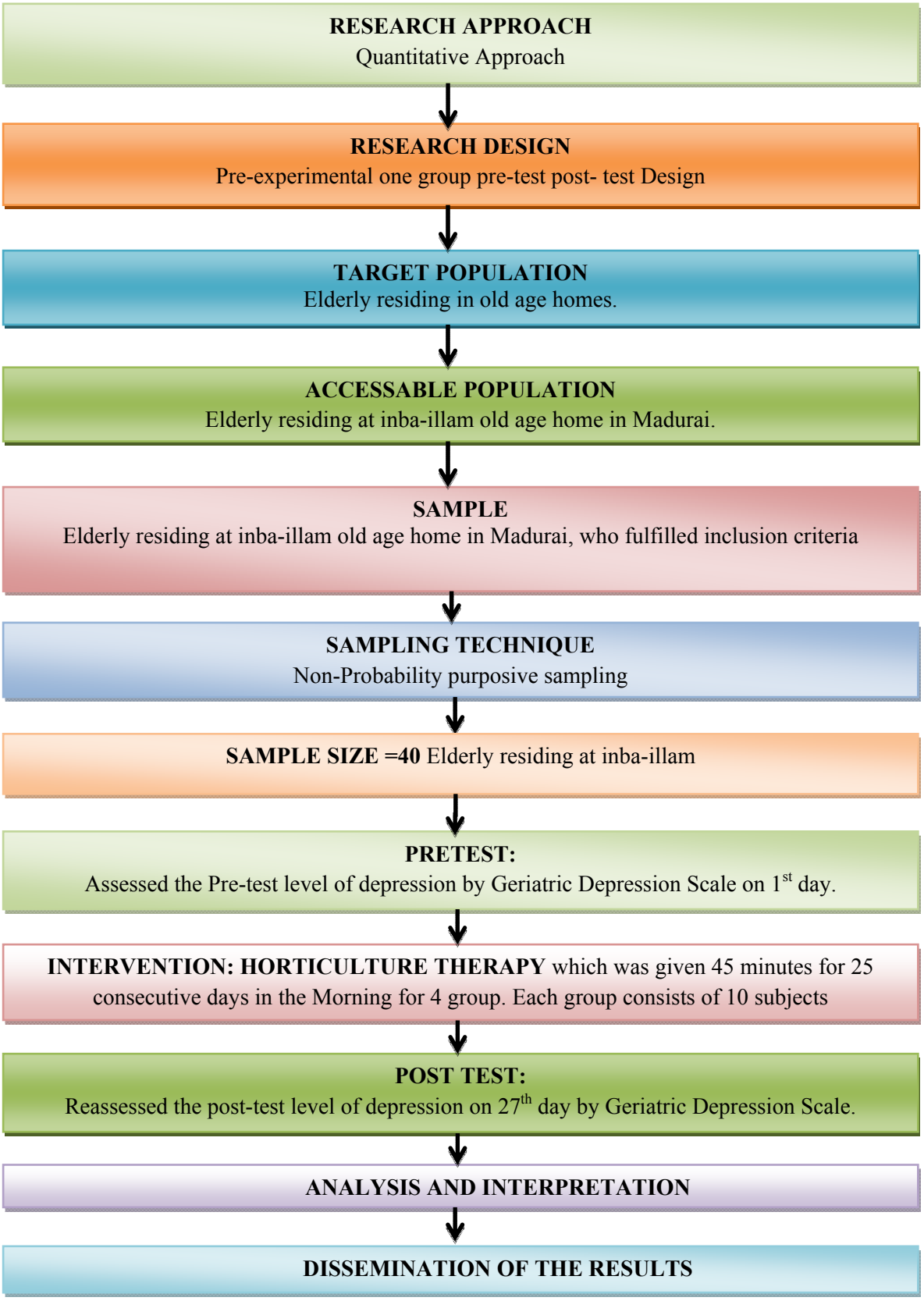

Figure 2.Schematic representation of the study

Data analysis and Interpretation

CHAPTER – IV

DATA ANALYSIS AND INTERPRETATION

This chapter deals with the description of sample, analysis, and interpretation of the data collected to evaluate the achievement of the objectives of the study. The data collected is tabulated and described as follows, In this chapter the data collected were edited, tabulated, analyzed and interpreted. The findings were organized and presented in the following orderly sections.

THE DATA COLLECTED WERE INTERPRETED UNDER THE FOLLOWING SECTIONS

SECTION I

Distribution of elderly residing in the old age home according to the socio - demographic variables.

SECTION II

Frequency and percentage distribution of the depression level among elderly.

SECTION III

Effectiveness of horticulture therapy on depression among elderly.

SECTION IV

Association between the level of depression and their selected socio-demographic variables of the elderly.

SECTION I

TABLE 1: DISTRIBUTION OF ELDERLY ACCORDING TO THE SOCIO-DEMOGRAPHIC VARIABLES

n=40

SOCIO-DEMOGRAPHIC VARIABLES		f	%
AGE	60 -69 yrs	16	40.0%
	70 -79 yrs	21	52.5%
	>80 years	3	7.5%
SEX	Male	19	47.5%
	Female	21	52.5%
RELIGION	Hindu	26	65.0%
	Christian	12	30.0%
	Muslim	2	5.0%
PERSONAL INCOME	Govt. old age pension	23	57.5%
	Dependent on old age home	17	42.5%
MARITAL STATUS	Unmarried	8	20.0%
	Married	27	67.5%
	Widow	4	10.0%
	Divorced	1	2.5%
NUMBER OF CHILDREN	No children	21	52.5%
	1 – 2	16	40.0%
	> 2	3	7.5%
EMPLOYMENT OF CHILDREN	No children	21	52.5%
	Working abroad	2	5.0%
	Working in Madurai.	5	12.5%
	Working in Tamilnadu	7	17.5%
	Working in Other state	5	12.5%
NATURE OF ADMISSION TO THE OLD AGE HOME	Voluntary	10	25.0%
	Forced by Family members	8	20.0%
	Brought by Friends	12	30.0%
	Brought by others.	10	25.0%
DURATION OF STAY IN OLD AGE HOME	<1 year	4	10.0%
	1 -3 yrs	9	22.5%
	4 -5 yrs	7	17.5%
	> 5 yrs	20	50.0%
PERFORMANCE OF ACTIVITIES	Independent	40	100.0%
HISTORY OF ILLNESS	Medical illness	31	77.5%
	No illness	9	22.5%
TAKING MEDICINES	Yes	29	72.5%
	No	11	27.5%

Table 1 explains that majority of the elderly 21(52.5%) were in the age group of 70-79 years, 16(40.0%) were in the age group of 60-69 years, 3(7.5%) belonged to the age group of more than 80 years.

Regarding the sex, majority of the elderly 21(52.5%) were females and 19(47.5%) were males.

When comparing the religion, most of the elderly 26(65.0%) were Hindus 12(30.0%) were Christians and remaining 2(5.0%) were Muslims.

While discussing their personal income, 23(57.5%) were receiving government old age pension and the rest of them were dependent on the old age home for their living.

When comparing the marital status, majority of the elderly 27(67.5%) were married and 8(20.0%) were single, 4(10.0%) of them were widow / widower and 1(2.5%) were divorcees.

While discussing the number of children, majority of the elderly 21(52.5%) had no children, 16(40.0%) had 1-2 children, and 3(7.5%) had more than 2 children.

Regarding the employment status of children of elderly majority of the elderly 21(52.5%) had no children, 5(12.5%) children are working in Madurai, 7(17.5%) are working in Tamil Nadu, 5(12.5%) are working in other states and 2(5.0%)of them are working abroad.

Considering the nature of admission to the old age home, majority of the elderly 12(30%) were brought by friends, 10(25.0%) were by voluntary, 10(25.0%) were by others and the remaining 8(20.0%) were by family members.

When comparing the duration of stay in the old age home 20(50%) were residing in old age home for more than 5yrs, 9(22.5%) were residing for a period from

1 -3 yrs, 7(17.5%) were residing for a period of 4 -5 yrs, and the remaining 4(10%) of them were residing for a period for less than a year.

Regarding the performance of activities 40(100%) elders can perform all the activities of their own .None of them were dependent on others.

When comparing the presence of illness majority 31(77.5%) were had medical illness and the remaining 9(22.5%) of them did not have any medical illness.

While discussing the history of taking medications, majority 29(72.5%) were taking medications and the remaining 11(27.5%) of them were not taking medications.

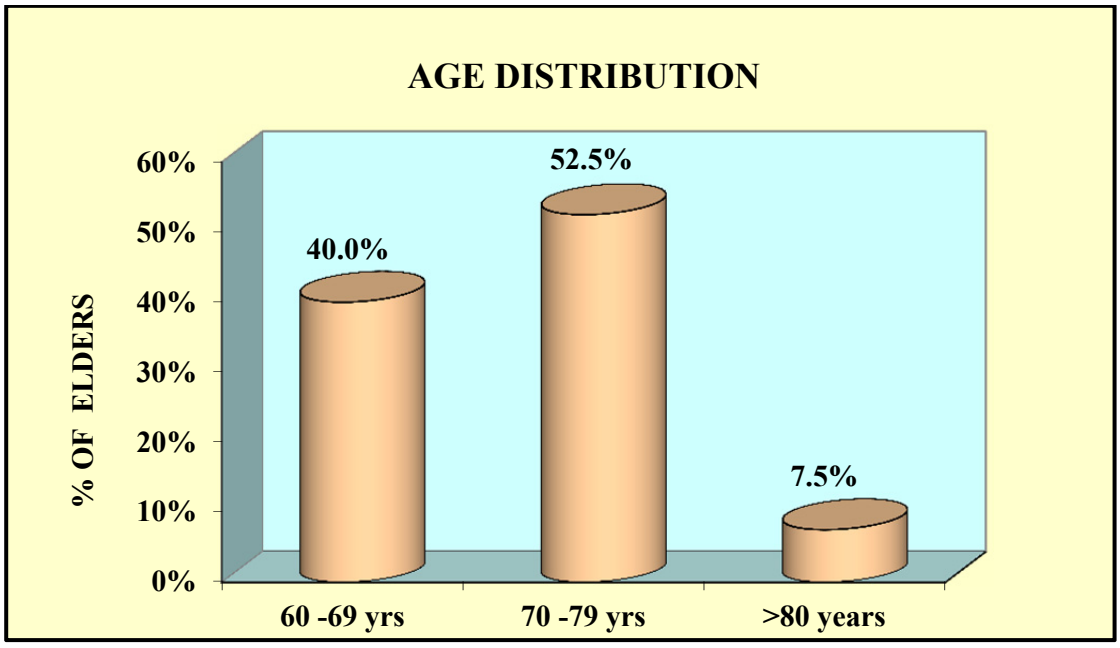

Figure 3: Cylinder diagram shows the distribution of elderly according to their age.

Majority of the elderly 21(52.5%) were in the age group of 70-79 years, 16(40.0%) were in the age group of 60-69 years, 3(7.5%) belonged to the age group of more than 80 years.

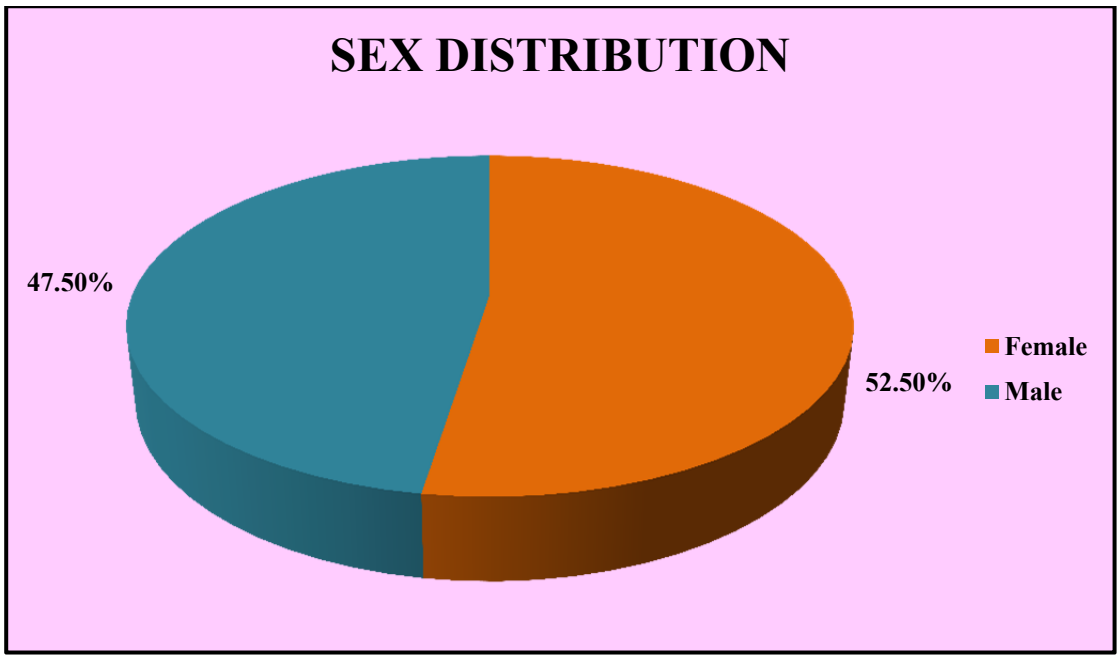

Figure.4: Pie diagram depicts the distribution of elderly according to their sex.

Based on the sex of elderly most of them 21(52.5%) were females and 19(47.5%) were males.

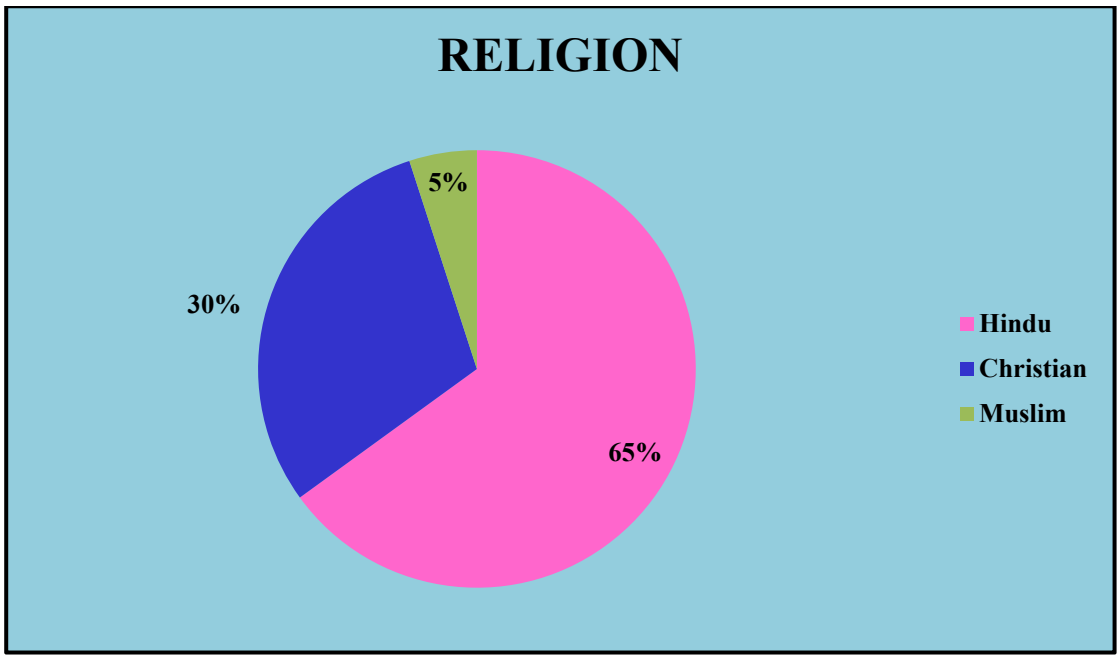

Figure 5: Pie diagram manifests the distribution of elderly according to their Religion.

Considering the religion of elderly 26(65.0%) were Hindus 12(30.0%) were Christians and remaining 2(5.0%) were Muslims.

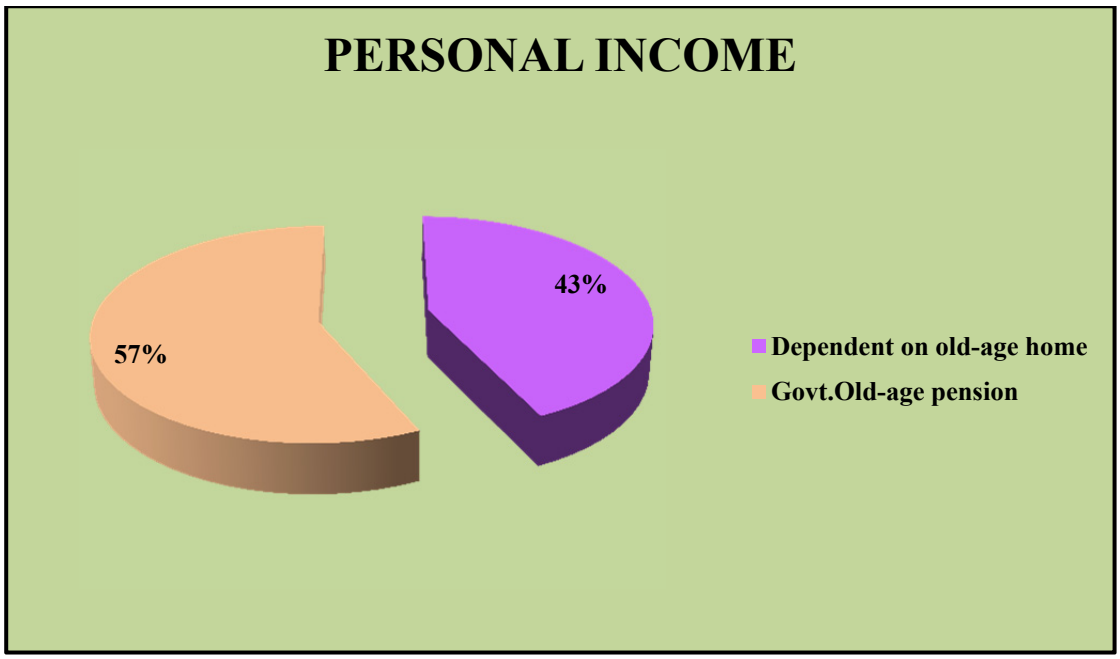

Figure 6: Pie diagram narrates the distribution of elderly according to their personal income.

Majority of elderly 23(57%) receive government old age pension and the rest of them are dependent on the old age home for their living.

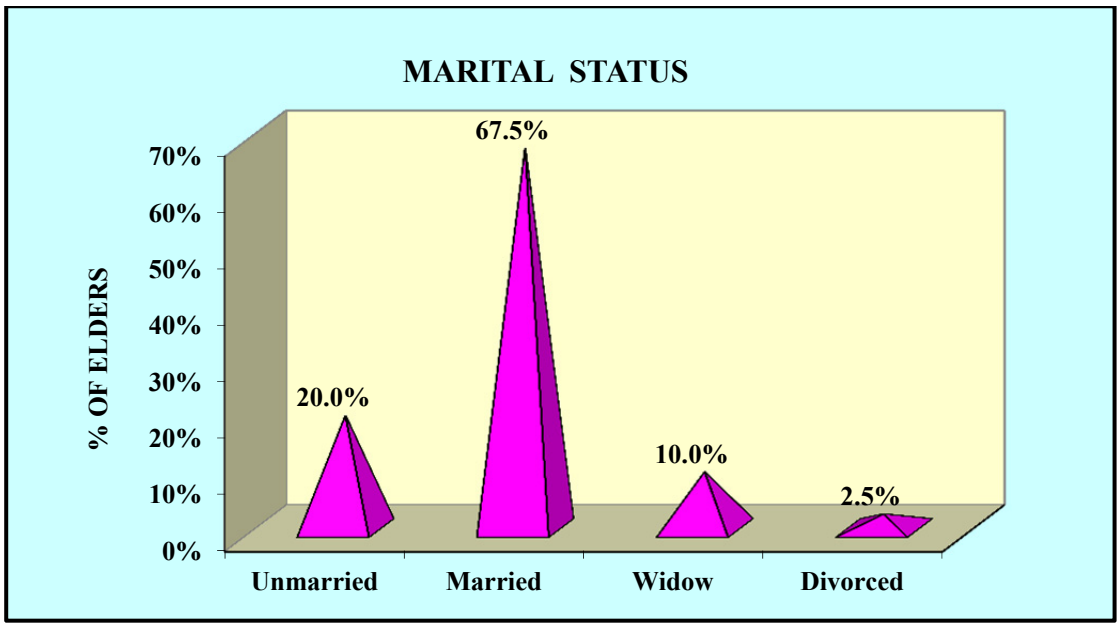

Figure 7: Pyramid diagram explains the distribution of elderly according to their Marital status.

Regarding the marital status, majority of the elderly, 27(67.5%) were married and they were single 8(20.0%), 1(2.5%) were divorcees, 4(10.0%) of them were widow / widower.

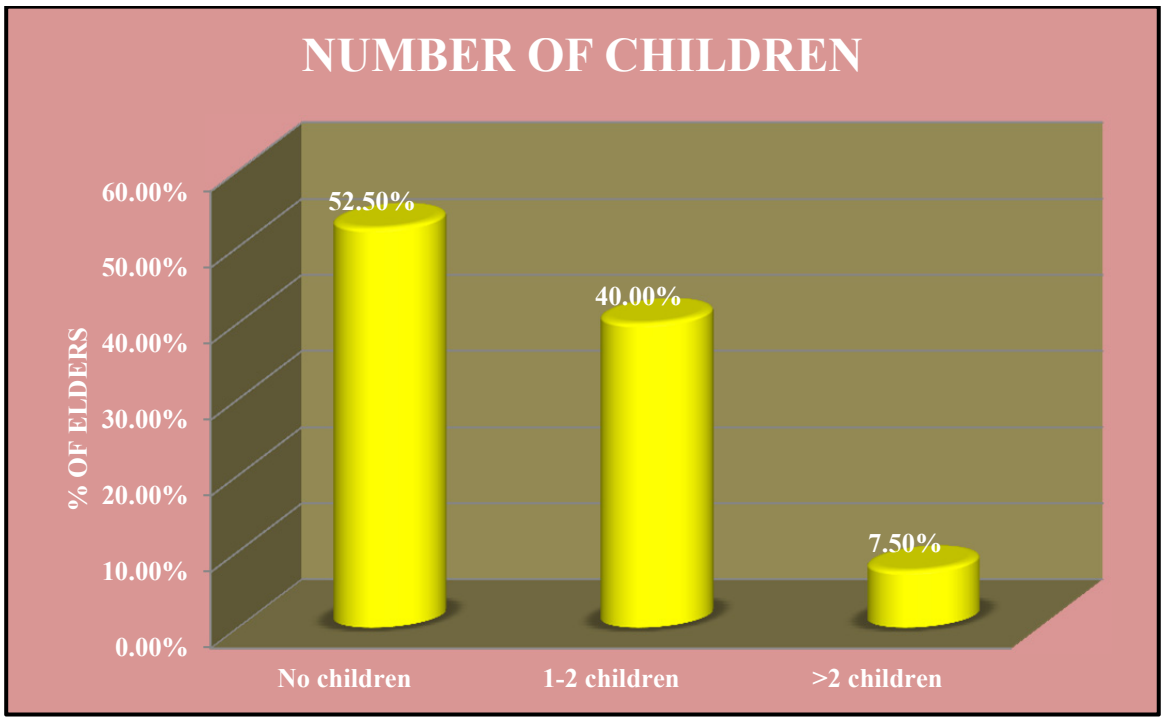

Figure.8: Cylinder diagram portrays distribution of elderly according to the number of children.

Majority of the elderly 21(52.5%) had no children, 16(40.0%) had 1-2 children, and 3(7.5%) had more than 2 children.

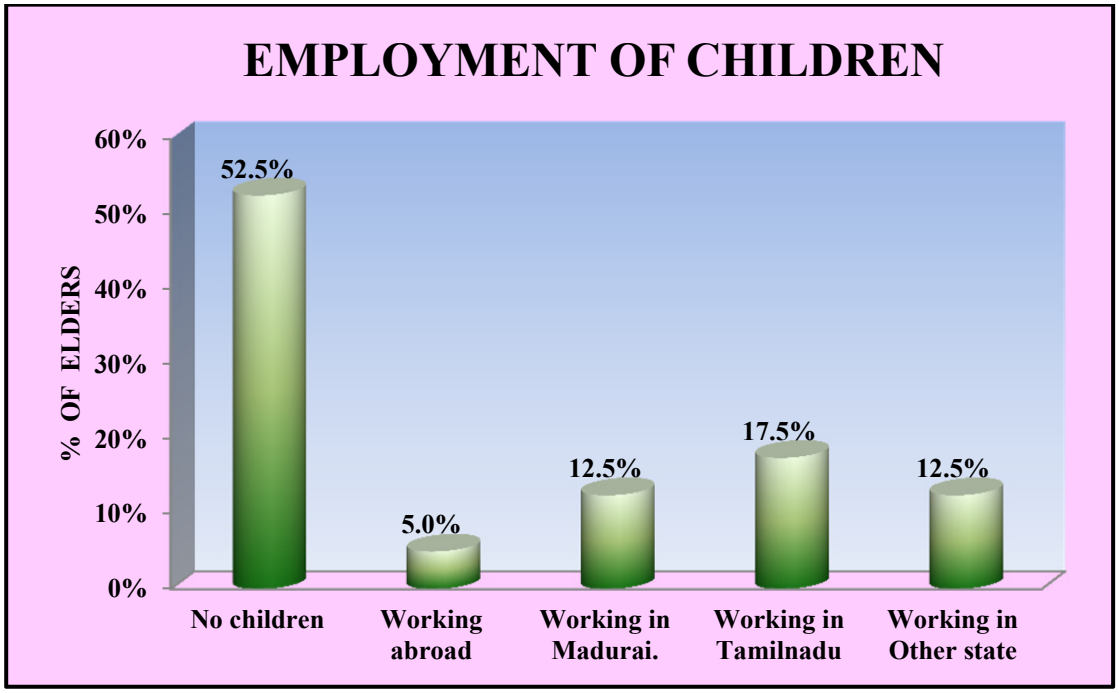

Figure 9: Cylinder diagram depicts the distribution of elderly according to the employment of children.

Around 5(12.5%) children are working in Madurai, 7(17.5%) are working in Tamil-Nadu, 5(12.5%) are working in other states and 2(5.0%) of them are working abroad.

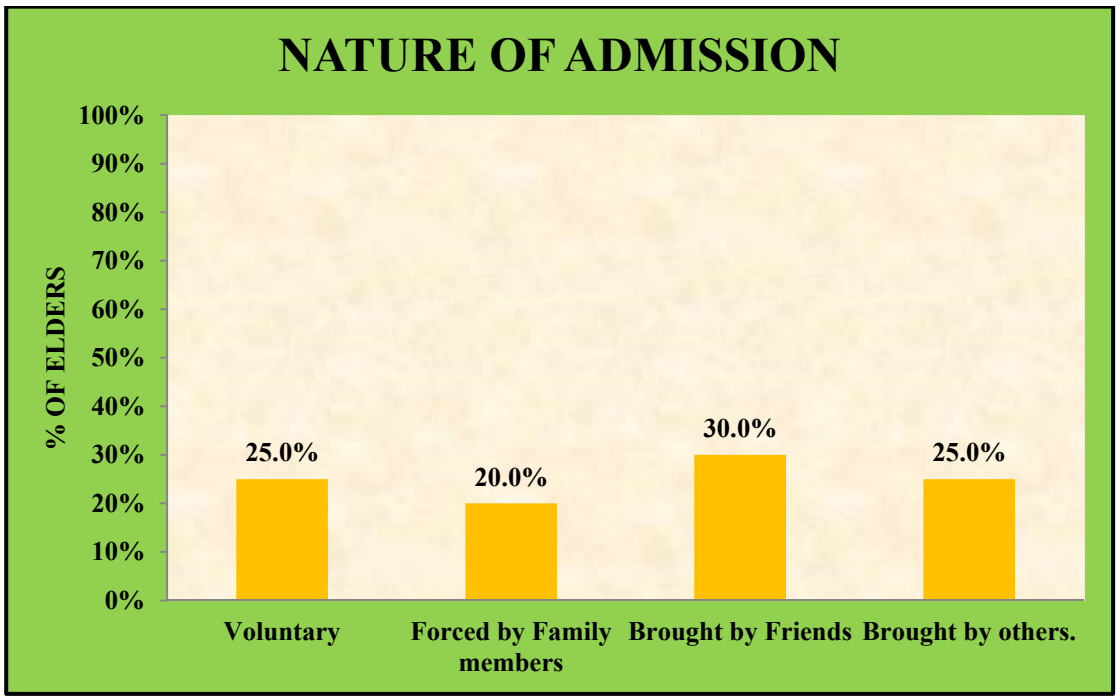

Figure 10: Simple bar diagram states the distribution of elderly according to the nature of admission to the old age home.

Considering the nature of admission of elderly 12(30%) were brought by friends, 10(25.0%) were by voluntary, 10(25.0%) were by others and the remaining 8(20.0%) were by family members.

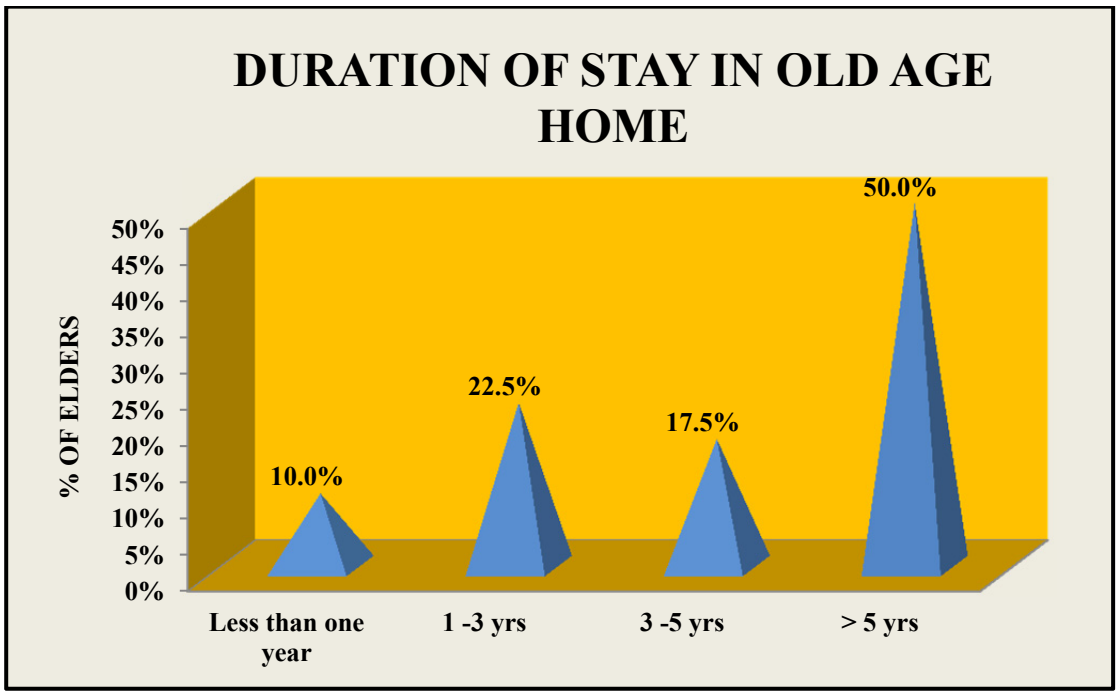

Figure 11: Pyramid diagram identifies the distribution of elderly according to their duration of stay.

Majority of elderly in the old age home 20(50%) were residing in old age home for more than 5yrs 9(22.5%) were residing for a period from 1 -3 yrs, 7(17.5%) were residing for a period of 3 -5 yrs, and the remaining 4(10%) of them were for a period for less than a year.

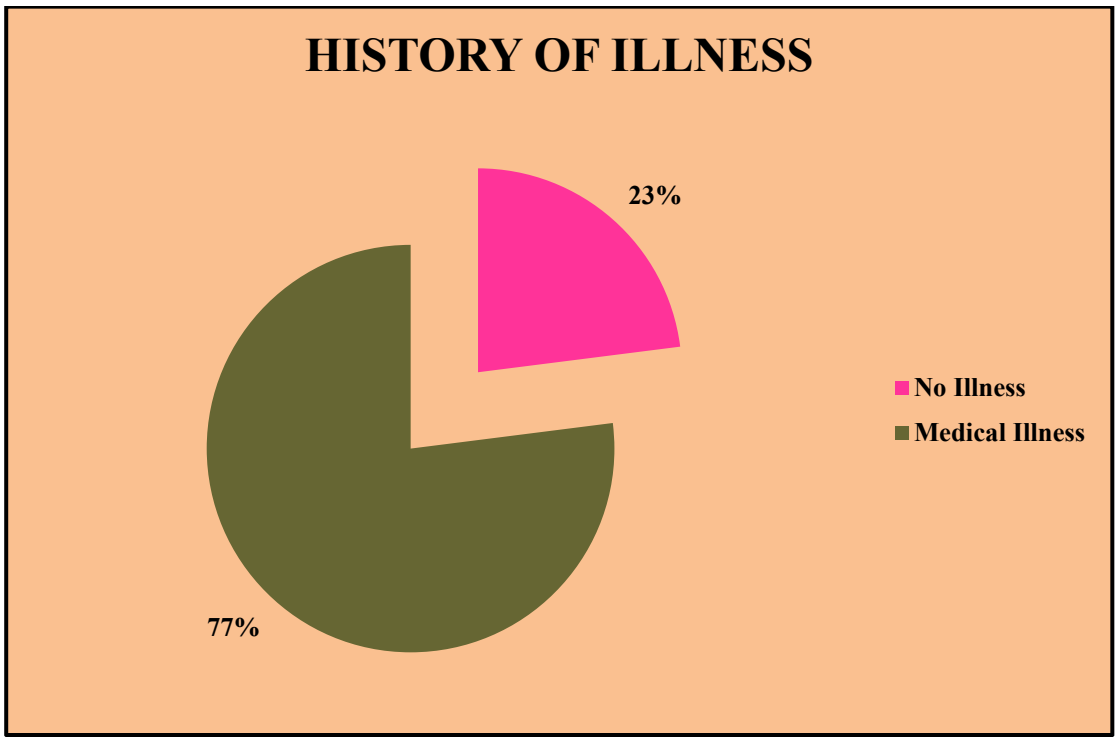

Figure 12: Pie diagram quotes the distribution of elderly according to the presence of illness.

Around 31(77.5%) have any illness and the remaining 9(22.5%) of them did not have any medical illness.

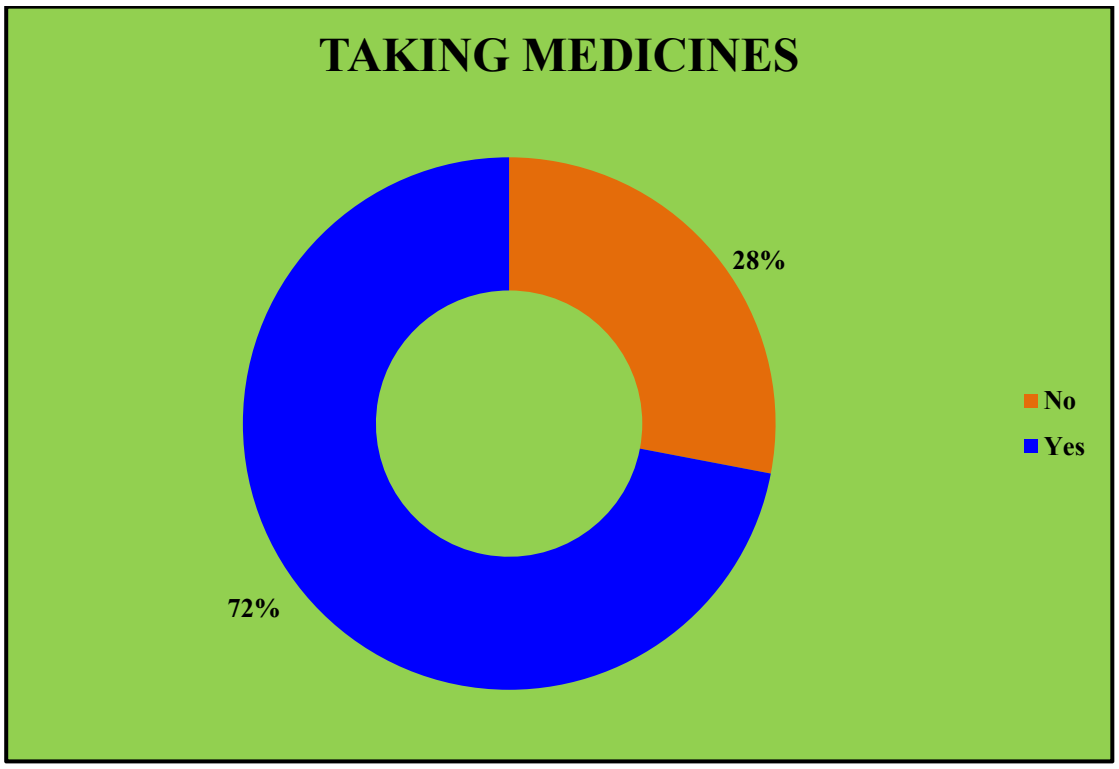

Figure 13: Doughnut diagram delineates the distribution of elderly according to their continuous intake of medicines.

Based on the continuous intake of medicines, around 29(72.5%) take medications and the remaining 11(27.5%) of them were not taking medications.

SECTION II

TABLE 2 : FREQUENCY AND PERCENTAGE DISTRIBUTION OF ELDERLY ACCORDING TO THEIR LEVEL OF DEPRESSION.

n=40

Level of depression	Pretest		Post test	
	(f)	(%)	(f)	(%)
Normal	0	0.0%	6	15.0%
Mild	13	32.5%	25	62.5%
Moderate	27	67.5%	9	22.5%
Severe	0	0.0%	0	0.0%
Total	40	100%	40	100%

In pre-test 13(32.5%) of the elders were having mild depression, 27(65.0%) of them were having moderate depression, none of them were having severe depression.

In post-test after receiving the horticulture therapy, 6(15.0%) of the elders were normal, 25(62.5%) of the elders were having mild depression, 9(22.5%) of them are having moderate depression.

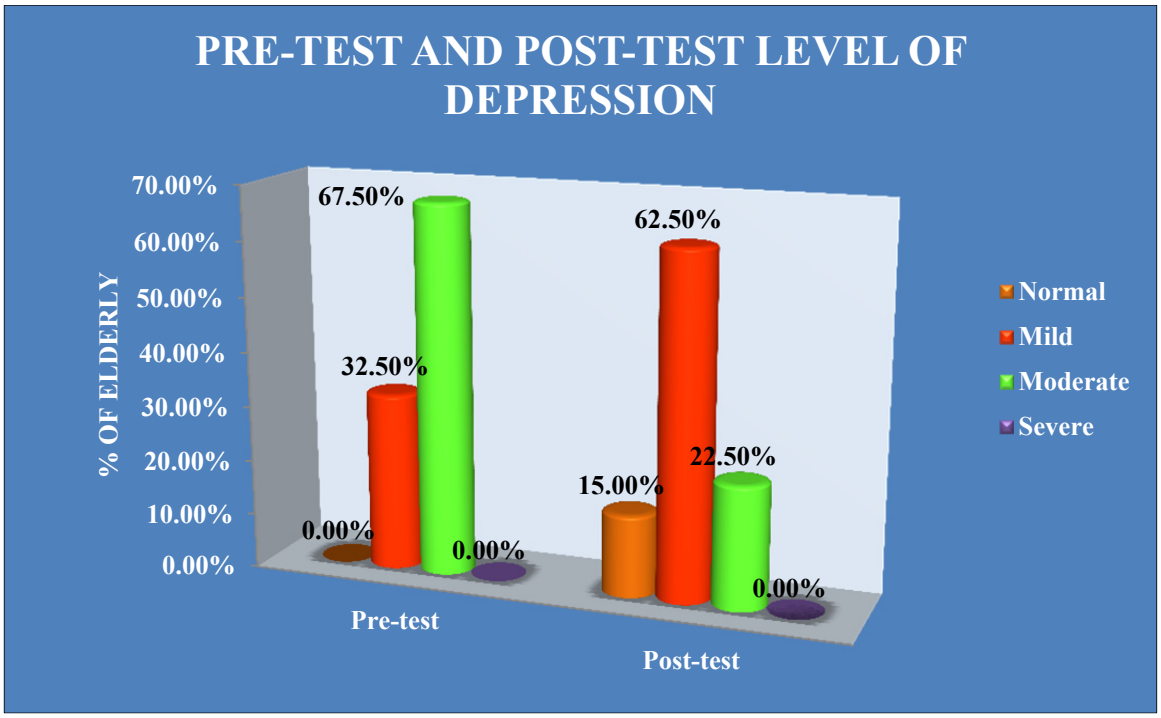

Figure 14: Multiple cylinders diagram portrays the distribution of elderly based on Pre-test and Post-test level of depression.

In pretest 13(32.5%) of the elders were having mild depression, 27(65.0%) of them were having moderate depression, after the horticulture therapy intervention ,in post-test 6(15.0%) of the elders were normal, 25(62.5%) of the elders were having mild depression, 9(22.5%) of them were having moderate depression.

SECTION III

TABLE 3 : EFFECTIVENESS OF HORTICULTURE THERAPY ON DEPRESSION AMONG ELDERLY AT SELECTED OLD AGE HOME IN MADURAI.

n=40

Variables	Mean ± SD	Mean difference	't' Value	'P' Value
Pre-test	9.35±1.72	2.62	t=14.46 (TV=3.55)	P=0.001*** Significant
Post-test	6.73±1.94			

*** very highly significant at P≤0.001

Table No 3 depicts the mean pre-test and post-test depression score was 9.35 and 6.73 and the standard deviation in the pre-test and post-test was 1.72 and 1.94 respectively. The Mean difference was 2.62.The paired 't' test value was14.46 which was greater than the table value (3.55), which was significant at 0.001. Hence it was evidenced that horticulture therapy was more effective in terms of reducing depression among the in the selected old age home at Madurai.

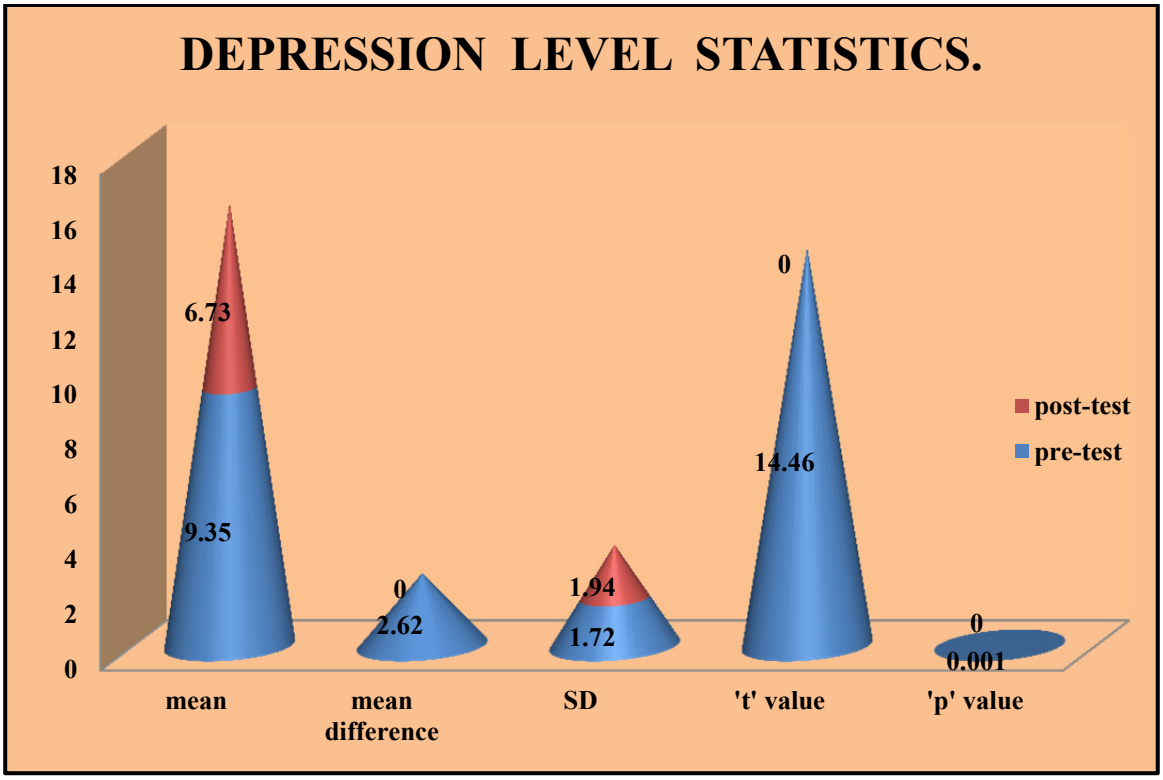

Figure 15: Cone diagram narrates the Effectiveness of Horticulture therapy on depression among elderly.

The mean of the Pre- test and Post- test was 9.35 and 6.73 and standard deviation of the Pre- test and Post -test was1.72 and 1.94. The Mean difference was 2.62.The paired 't' test value was14.46. 'P' value was 0.001. It was significant at 5% level of significance.

TABLE 4: COMPARISON OF MEAN DEPRESSION SCORE

n=40

	No. of elders	**Mean ± SD**	**Mean difference**	**Student's paired t-test**
Pretest	40	9.35±1.72	2.62	t=14.46 P=0.001*** significant
posttest	40	6.73±1.94		

*** very highly significant at P≤0.001

The above table 4 depicts the comparison of mean depression score between pre-test and post- test. The pre- test mean stress score was 9.35with a standard deviation 1.72, whereas post- test mean stress score was 6.73 with a standard deviation 1.94. Mean difference is 2.62.

The student paired 't' was done to find out the difference between the pre-test and post test score, 't' 14.46 was greater than the table value (3.55) which was significant at 0.001 level. This shows that the difference in the score was due to the intervention (Horticulture therapy) and also this proves that the Horticulture therapy was effective in reducing the depression score among elderly in a selected old age home at Madurai.

COMPARISON OF MEAN DEPRESSION SCORE

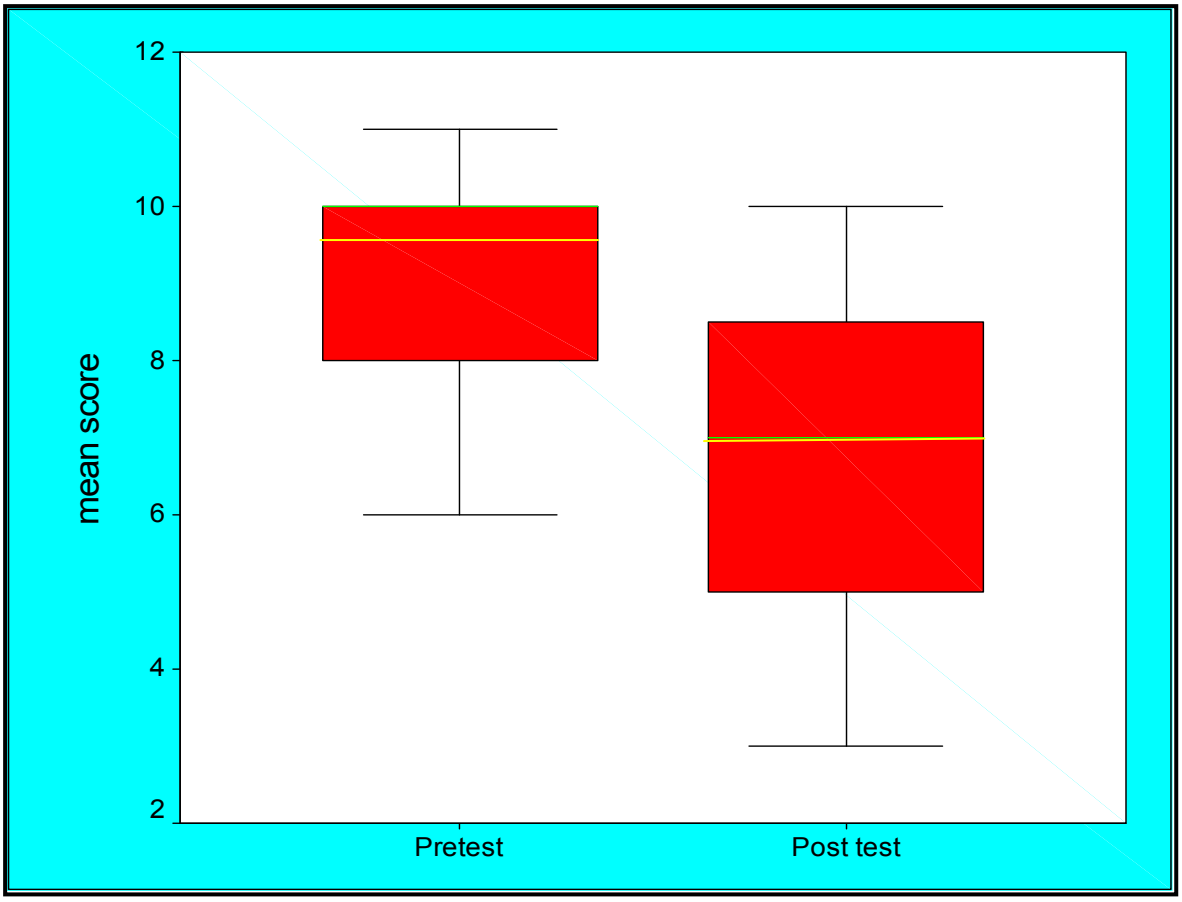

Figure 16 : Box-plot diagram portrays the mean pre-test and post-test depression score among elderly in a selected old age home. The pre- test mean score was 9.35 with a standard deviation of 1.72, whereas the post- test mean score was 6.73 with a standard deviation 1.94 .mean difference is 2.62.

TABLE 5: COMPARISON OF DEPRESSION REDUCTION SCORE

n=40

Variables	Maximum score	Mean depression score	Mean Difference in depression reduction with 95% Confidence interval	Percentage of depression reduction with 95% Confidence interval
Pretest	15	9.35	2.62(2.26 – 2.99)	↓17.5% (15.1% – 19.9%)
Posttest	15	6.73		

Table 5 describes the Effectiveness of horticulture therapy on depression among elderly in a selected old age home at Madurai.

On an average, after receiving horticulture therapy elderly depression was reduced 17.5%than pretest score. Difference between pretest and posttest score was analyzed using proportion with 95% Confidence interval and mean difference with 95% Confidence interval. This 17.5% reduction score shows the effect of horticulture therapy on depression among elderly in a selected old age home at Madurai.

SECTION IV

TABLE 6: ASSOCIATION BETWEEN POST-TEST LEVEL OF DEPRESSION AMONG ELDERLY WITH THEIR SELECTED SOCIO-DEMOGRAPHIC VARIABLES

n=40

SOCIO-DEMOGRAPHIC VARIABLES		POST- TEST LEVEL OF DEPRESSION						TOTAL	χ^2
		NORMAL		MILD		MODERATE			
		f	%	f	%	f	%		
AGE	60 -69 yrs	5	31.2%	10	62.5%	1	6.2%	16	**χ^2=10.02 P=0.04***
	70 -79 yrs	1	4.7%	14	66.7%	6	28.5%	21	
	>80 years	0	0.0%	1	33.3%	2	66.7%	3	
SEX	Male	5	26.3%	13	68.4%	1	5.2%	19	**χ^2=8.07 P=0.02***
	Female	1	4.8%	12	57.1%	8	38.1%	21	
RELIGION	Hindu	5	19.2%	14	53.8%	7	26.9%	26	χ^2=4.12 P=0.38
	Christian	1	8.3%	10	83.3%	1	8.3%	12	
	Muslim			1	50.0%	1	50.0%	2	
PERSONAL INCOME	Govt. old age pension	2	8.7%	13	56.5%	8	34.8%	23	χ^2=5.37 P=0.07
	Dependent on old age home	4	23.5%	12	70.6%	1	5.9%	17	
MARITAL STATUS	Unmarried	2	25.0%	5	62.5%	1	12.5%	8	χ^2=2.38 P=0.88
	Married	4	14.8%	16	59.3%	7	25.9%	27	
	Widow			3	75.0%	1	25.0%	4	
	Divorced			1	100.0%			1	
NUMBER OF CHILDREN	No children	5	26.3%	11	57.9%	5	26.3%	21	χ^2=1.16 P=0.87
	1 – 2	3	16.7%	10	62.6%	3	16.7%	16	
	> 2	-	-	2	66.7%	1	33.3%	3	
EMPLOYMENT OF CHILDREN	No children	3	14.3%	13	61.9%	5	23.8%	21	χ^2=4.50 P=0.80
	Working abroad	-	-	2	100.0%	-	-	2	
	Working in Madurai.	1	20.0%	4	80.0%	-	-	5	
	Working in Tamil Nadu	1	14.3%	3	42.9%	3	42.9%	7	
	Working in Other state	1	20.0%	3	60.0%	1	20.0%	5	
NATURE OF ADMISSION TO THE OLD AGE HOME	Voluntary	1	10.0%	7	70.0%	2	20.0%	10	χ^2=3.89 P=0.65
	Forced by Family members	2	25.0%	4	50.0%	2	25.0%	8	
	Brought by Friends	3	25.0%	7	58.3%	2	16.7%	12	
	Brought by others.	-	-	7	70.0%	3	30.0%	10	

DURATION OF STAY IN OLD AGE HOME	Less than one year	-	-	4	100.0%	-	-	4	$\chi 2$=4.60 P=0.60
	1 -3 yrs	2	22.2%	5	55.6%	2	22.2%	9	
	4 -5 yrs			5	71.4%	2	28.6%	7	
	> 5 yrs	4	20.0%	11	55.0%	5	25.0%	20	
PERFORMANCE OF ACTIVITIES	Independent	6	15.0%	25	62.5%	9	22.5%	40	$\chi 2$=0.00 P=1.00
HISTORY OF ILLNESS	Medical illness	1	3.2%	22	70.9%	8	25.9%	31	**$\chi 2$=14.98 P=0.001*** **
	No illness	5	55.6%	3	33.3%	1	11.1%	9	
TAKING MEDICINE	Yes	4	13.8%	19	65.5%	6	20.7%	29	$\chi 2$=0.41 P=0.82
	No	2	18.2%	6	54.5%	3	27.3%	11	

* Significant at 0.05% level

Table 6 manifests the association between the post-test depression score of elderly and their selected socio demographic variables. Chi-square analysis revealed that, there was association between the level of depression score and their age, sex, history of illness. All other variables were not significantly associated among the elderly in the selected with their post test score

TABLE 7 : ASSOCIATION BETWEEN THE LEVEL OF DEPRESSION REDUCTION SCORE WITH THEIR SELECTED SOCIO-DEMOGRAPHIC VARIABLES OF ELDERLY.

n=40

SOCIO-DEMOGRAPHIC VARIABLES		LEVEL OF DEPRESSION REDUCTION				TOTAL	χ^2
		BELOW AVERAGE(≤2.62)		ABOVE AVERAGE(>2.62)			
		f	%	f	%		
AGE	60 -69 yrs	4	25.0%	12	75.0%	16	**χ^2=6.66 P=0.03***
	70 -79 yrs	14	66.6%	7	33.4%	21	
	>80 years	2	66.6%	1	33.4%	3	
SEX	Male	6	31.6%	13	68.4%	19	**χ^2=4.91 P=0.03***
	Female	14	66.7%	7	33.3%	21	
RELIGION	Hindu	13	50.0%	13	50.0%	26	χ^2=2.33 P=0.31
	Christian	5	41.7%	7	58.3%	12	
	Muslim	2	100.0%			2	
PERSONAL INCOME	Govt. old age pension	11	47.8%	12	52.2%	23	χ^2=0.10 P=0.75
	Dependent on old age home	9	52.9%	8	47.1%	17	
MARITAL STATUS	Unmarried	4	50.0%	4	50.0%	8	χ^2=1.03 P=0.79
	Married	14	51.9%	13	48.1%	27	
	Widow	2	50.0%	2	50.0%	4	
	Divorced			1	100.0%	1	
NUMBER OF CHILDREN	No children	9	47.4%	10	52.6%	21	χ^2=0.38 P=0.82
	1 – 2	9	50.0%	9	50.0%	16	
	> 2	2	66.7%	1	33.3%	3	
EMPLOYMENT OF CHILDREN	No children	10	47.6%	11	52.4%	21	χ^2=3.33 P=0.50
	Working abroad	1	50.0%	1	50.0%	2	
	Working in Madurai.	3	60.0%	2	40.0%	5	
	Working in Tamil-nadu	5	71.4%	2	28.6%	7	
	Working in Other state	1	20.0%	4	80.0%	5	
NATURE OF ADMISSION TO THE OLD AGE HOME	Voluntary	5	50.0%	5	50.0%	10	χ^2=2.73 P=0.43
	Forced by Family members	6	75.0%	2	25.0%	8	
	Brought by Friends	5	41.7%	7	58.3%	12	
	Brought by others.	4	40.0%	6	60.0%	10	

DURATION OF STAY IN OLD AGE HOME	Less than one year	1	25.0%	3	75.0%	4	$\chi 2$=2.14 P=0.54
	1 -3 yrs	6	66.7%	3	33.3%	9	
	3 -5 yrs	3	42.9%	4	57.1%	7	
	> 5 yrs	10	50.0%	10	50.0%	20	
PERFORMANCE OF ACTIVITIES	Independent	20	50.0%	20	50.0%	40	$\chi 2$=0.00 P=1.00
HISTORY OF ILLNESS	Medical illness	19	61.3%	12	38.7%	31	**$\chi 2$=7.02 P=0.01****
	No illness	1	11.1%	8	88.9%	9	
TAKING MEDICINES	Yes	16	55.2%	13	44.8%	29	$\chi 2$=1.12 P=0.28
	No	4	36.4%	7	63.6%	11	

Table 7 explains the association between level of depression reduction among elderly with their selected socio demographic variables. Chi- square analysis revealed that there was association between the level of depression reduction and age (60-69 years), sex of elderly(male), and the history of illness (No illness) were benefited more than others. Statistical significance was calculated using chi square analysis.

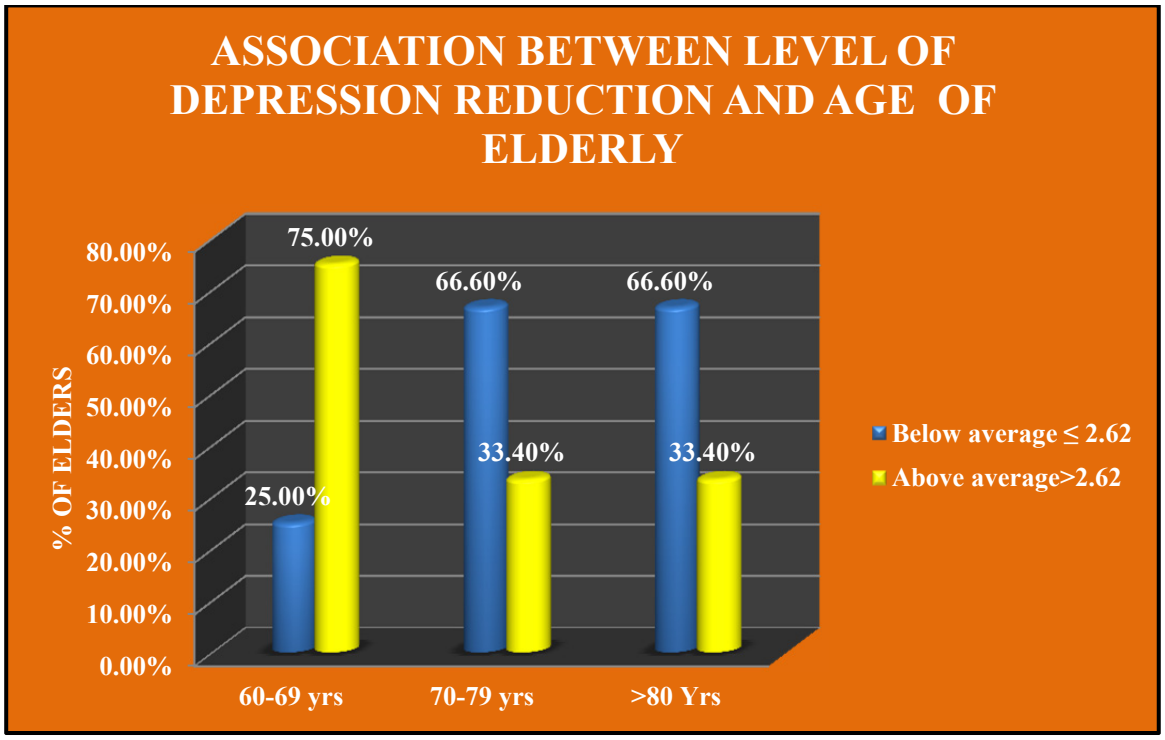

Figure 17: Multiple cylinder diagram identifies the association between the level of depression reduction and the age of elderly.

According to the age of elderly, the age group of 60-69 years have more depression reduction than elderly of other age groups.

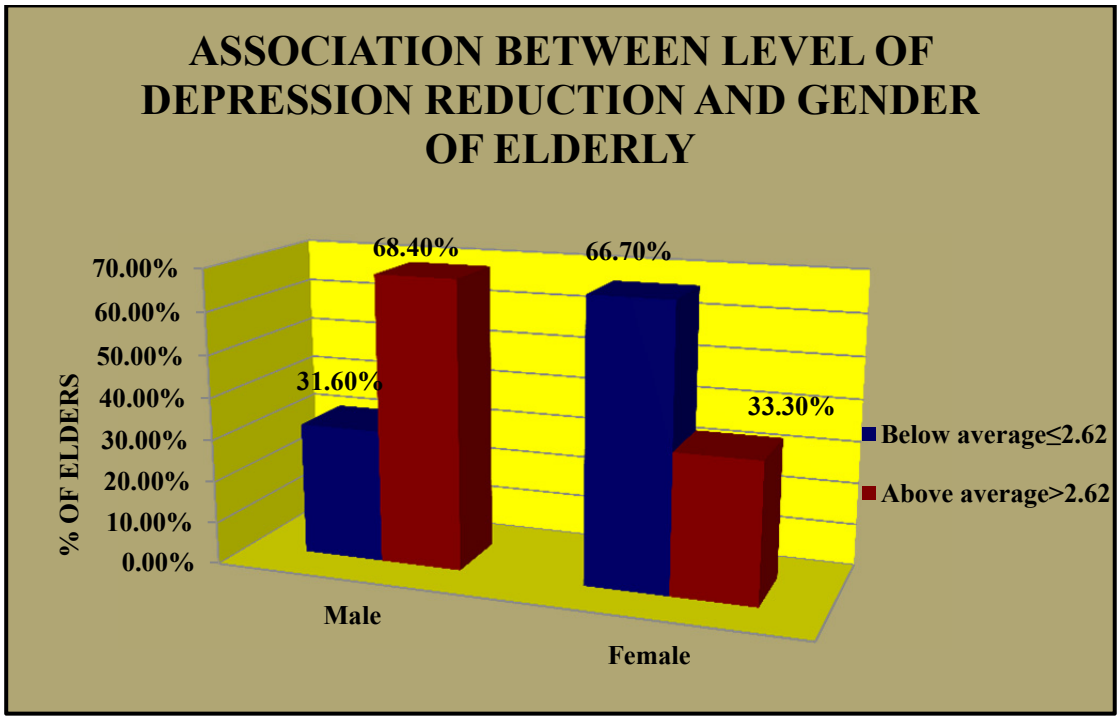

Figure 18: Multiple Bar diagram portrays association between the level of depression reduction and the sex of elderly.

According to the sex of elderly, the depression reduction was more in males than females.

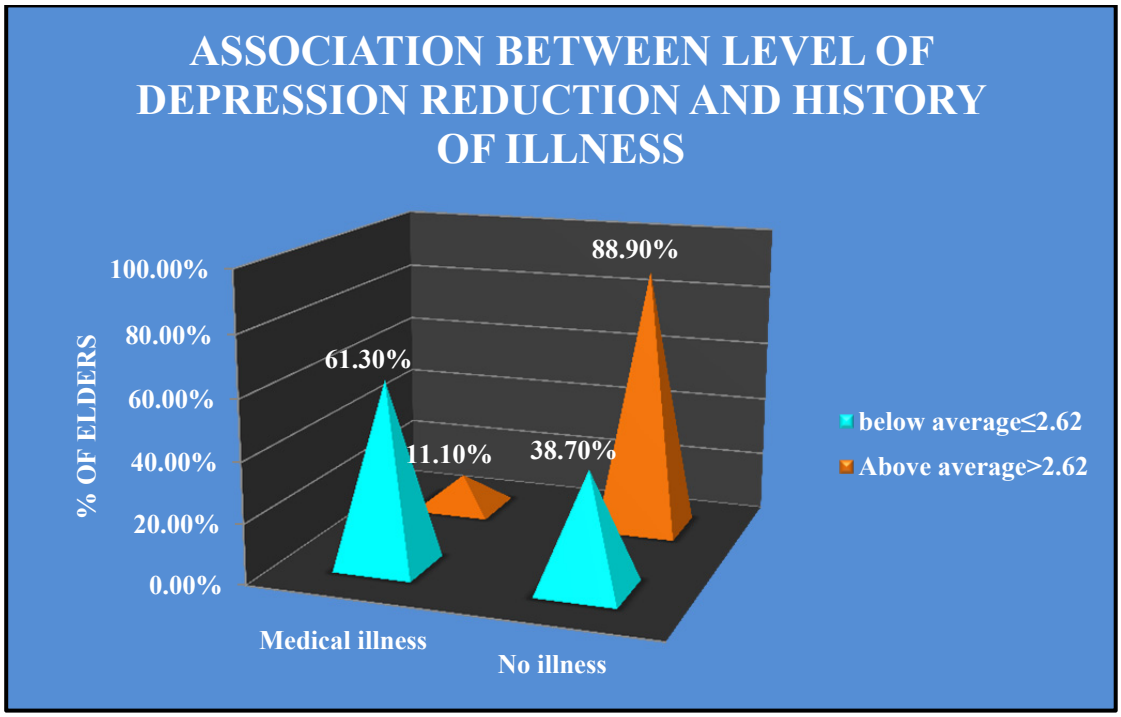

Figure 19: Multiple pyramid diagrams explain the association between the level of depression reduction and the history of illness among elderly.

According to history of illness, elderly with no illness have more depression reduction than elderly with history of medical illnesses.

Discussion

CHAPTER – V

DISCUSSION

"*Beautiful young people are accidents of nature,*

but beautiful old people are works of art."

-Eleanor Roosevelt.

This chapter deals about the results of the study interpreted from the statistical analysis. Even though depression is the commonest psychiatric disorder in the elderly, it is commonly misdiagnosed and under treated.

Throughout the centuries nature has been considered to have healing potential. Plants, sunlight and other nature elements have often been incorporated in healthcare settings as a therapeutic adjunct and to improve the atmosphere for patients, staff and visitors.

The evidences conclude that contact with natural environments may result in improved health outcomes. Studies in general and healthcare populations have measured muscle tension, blood pressure, heart rate and immune response, as well as emotional status, attention capacity and other indicators of psychological condition have been found to have a positive effect due to horticulture therapy.

It is also found that nature is important to the elderly, especially flower gardens and outdoor sitting areas, and that having nature nearby substantially contributed to residential satisfaction.

Horticulture therapy is found to impart beneficial effects in elderly nursing home residents who cared for a plant as part of a program to enhance sense of control. Residents given more control showed greater alertness and participation in activities,

and were found to have improved health and mortality rates measured eighteen months later.

The determination of this study was to evaluate the effectiveness of horticulture therapy on depression among elderly residing in a selected old age home at Madurai and the results obtained from the study are discussed.

5.1 DESCRIPTION OF ELDERLY AT THE SELECTED OLD AGE HOME AND THEIR SELECTED SOCIO DEMOGRAPHIC VARIABLES

It is fascinating to note that while declaring about the age group of the elderly 21 (52.5%) were in the age group of 70-79 years, 16 (40.0%) were in the age group of 60-69 years, 3 (7.5%) belonged to the age group of more than 80 years. Regarding the sex, majority of the elderly 21 (52.5%) were females and 19 (47.5%) were males.

When comparing the religion, most of the elderly 26 (65.0%) were Hindus 12 (30.0%) were Christians and remaining 2(5.0%) were Muslims.

While deliberating their personal income, 23(57.5%) were receiving government old age pension and the rest of them were dependent on the old age home for their living.

When stating their marital status, majority of the elderly 27 (67.5%) were married and t 8(20.0%) were single, 4 (10.0%) of them were widow / widower and 1(2.5%) were divorcees.

While discussing the number of children, majority of the elderly 21(52.5%) had no children, 16(40.0%) had 1-2 children, and 3(7.5%) had more than 2 children.

Concerning the employment status of children majority of the elderly 21(52.5%) had no children, 5(12.5%) children are working in Madurai, 7(17.5%) are

working in Tamil Nadu, 5(12.5%) are working in other states and 2(5.0%) of them are working abroad.

Considering the nature of admission to the old age home, majority of the elderly 12(30%) were brought by friends, 10 (25.0%) were by voluntary, 10 (25.0%) were by others and the remaining 8 (20.0%) were by family members.

While discussing the duration of stay in the old age home 20(50%) were residing in old age home for more than 5yrs, 9(22.5%) were residing for a period from 1 -3 yrs, 7(17.5%) were residing for a period of 4 -5 yrs, and the remaining 4(10%) of them were residing for a period for less than a year.

Conversing the performance of activities 40(100%) elders can perform all the activities of their own. None of them were dependent on others.

When comparing the presence of illness majority 31 (77.5%) were had medical illness and the remaining 9 (22.5%) of them did not have any medical illness.

While debating the history of taking medications, majority 29 (72.5%) were taking medications and the remaining 11 (27.5%) of them were not taking medications.

5.2 DISCUSSION OF THE STUDY BASED ON ITS OBJECTIVES

The first objective of the study was to assess the level of depression among elderly at selected old age home in Madurai.

Geriatric Depression scale (GDS) was used in this study to assess the level of depression among elderly at selected old age home in Madurai.

In pre-test 13(32.5%) of the elders were having mild depression, 27 (65.0%) of them were having moderate depression. This study revealed that elderly residing in old age home have higher level of depression.

The present study findings was congruent with the study done by Snowdon & Fleming, regarding the prevalence rate of depression among elderly is much higher in residential aged care facilities and a recent Australian study found that 34.7% of aged care residents suffered from depression .

These findings were also consistent with the findings of Patricia A. Parmelee in the assessment of prevalence of depression among institutionalized elderly 33% had major depression; about half this group also displayed significant cognitive deficits. Another 30.5% of the total sample reported less severe but nonetheless marked depressive symptoms.

The findings were also constant with the study conducted by J. K. Djernes identifies the prevalence of major depression ranges from 0.9% to 9.4% in private households, from 14% to 42% in institutional living, and from 1% to 16% among elderly living in private households or in institutions have clinically relevant depressive symptom 'cases' in similar settings vary between 7.2% and 49%.

The second objective of the study was to evaluate the effectiveness of Horticulture therapy on depression among elderly at the selected old age home in Madurai.

In the Pre-test, majority of the subjects 27(65.0%) had moderate depression, 13(32.50%) had mild depression. In the post-test, 6(15.0 %) were in normal depression, 25(62.5%) were in the mild depression, whereas 9(22.5%) of them were in moderate depression.

The mean pre-test depression score was 9.35 and mean post-test score was 6.73respectively with a standard deviation of the pre-test was 1.72and post-test standard deviation was 1.94. The mean difference is 2.62.

The student paired 't' test was done to find out the difference between pre-test and post test score. The paired 't' test value 14.46 was greater than table value (3.55) which was significant at 0.001 level.

Difference between the pre-test and post-test was analyzed using proportion with 95% confidence interval and mean difference with 95% confidence interval. This difference shows the effect of Horticulture therapy on depression among elderly in the selected old age home.

These findings were supported by a study conducted by Pramitha Kiran to assess the effectiveness of horticulture therapy on level of depression among old age population in a selected old age home at Salem and found that horticulture therapy is effective to decrease the level of depression among old age population in old age home.

These findings were congruent with the study done by Nalini. M. on the prevalence of depression among institutionalized elderly and the effect of horticulture therapy in selected old age home in Mangalore. An evaluatory approach with one group pre-test post –test design was adopted for this study. Simple random sampling was used for the selection of four old age homes in mangalore.430 inmates, above the age of 65 years from four selected old age homes were assessed for estimating prevalence rate of depression by Geriatric depression scale. Purposive sampling was used to select the samples for horticulture therapy. The first 50 inmates of abhaya-ashraya old age home who scored above 10 by GDS were selected for horticulture therapy. pre-test was administered using Hamilton Rating Scale for depression on 50 inmates of abhaya-ashraya. The participants attended daily session of 45 minutes of horticulture therapy for 25 days. On 26th day post test was administered by Hamilton Rating Scale for depression to the participants after horticulture therapy. The results

have shown the prevalence rate of depression was high (65.5%) among institutionalized elderly. Similarly the mean-post-test depression score was lower than the mean pre-test depression scores t(49)=1.873 p>0.05).

The findings were also consistent with the study conducted by Austin investigated community gardening at a senior center and found there was an impact on functional health, depression, and physical fitness. All participants experienced improved function for physical fitness, feelings, and change in overall health, social support, social activities, and quality of life. Social activities were statistically significant (p=.046) and 100% (n=6) reported their physical and emotional health had not limited their social activities with family, friends, neighbors, or groups.

Hence the stated hypotheses H1"There is a significant difference in the Pre-test and post-test level of depression among elderly." was accepted.

The third Objective of the study was to associate the level of depression among elderly at selected old age home in Madurai with their selected demographic variables.

Chi square analysis was calculated to determine the association between the selected socio-demographic variables and the level of depression among elderly in the selected old age home.

Table 6 portrays the association between post-test level of depression and selected socio-demographic variables among elderly in the selected old age home. Chi-square analysis revealed that there was a significant association between post-test level of depression and age ($\chi 2 = 10.02$), sex ($\chi 2 = 8.07$) and history of illness ($\chi 2 = 14.98$), and among elderly in the selected old age home.

There was no significant association between the post- test level of depression and the other socio-demographic variables such as religion, personal income, marital

status, number of children ,Nature of admission, duration of stay in the old age home and Performance of activities.

Table 7 explains the association between level of depression reduction score among elderly in the selected old age home with their selected socio demographic variables. Chi- square analysis revealed that there was association between the level of depression reduction score and age (60-69years), sex of elderly (male) and the history of illness (No illness) were benefited more than others.

This study finding was consistent with the study findings of sanghamitra Maulik et al, which revealed that the sex, literacy level, age, separated /divorced, widowed, socio-economic status, absence of personal income, staying without spouse and history of illness were significantly associated with the level of depression of the elderly in the old age home.

Another study by paula. M. Trief showed that diabetes had a significant association with depression among the geriatric population

Hence the stated hypothesis H_2: There is a significant association between the level of depression among elderly with their selected socio demographic variables was accepted.

Summary, Conclusion, Implications and Recommendations

CHAPTER – VI

SUMMARY, CONCLUSION, IMPLICATIONS AND RECOMMENDATIONS

This chapter presents the summary of the study and conclusion drawn, clarifies the limitation of the study, the implications and the recommendations, different areas like nursing practice, nursing Education, nursing administration and nursing research. It provides the recommendations made based on the study.

6.1 SUMMARY OF THE STUDY

The present study was undertaken to evaluate the effectiveness of Horticulture therapy on depression among elderly at selected old age home in Madurai.

THE STUDY CARRIED OUT THE FOLLOWINGOBJECTIVES

1. To assess the level of depression among elderly at selected old age home in Madurai.
2. To evaluate the effectiveness of horticulture therapy on depression among elderly at selected old age home in Madurai.
3. To associate the level of depression among elderly at selected old age home in Madurai with their selected socio demographic variables.

HYPOTHESES

The following hypotheses were set for the study at, 0.05 level.

H_1: There is a significant difference in the pre-test and post-test level of depression among elderly.

H_2: There is a significant association between the level of depression among elderly with their selected socio demographic variables.

ASSUMPTION

- Depression is increasingly prevailing among elderly at old age homes.
- Elderly may show interest to participate in Horticulture therapy.
- Horticulture therapy may not give any adverse reactions to the elderly.

The conceptual model of this study was based on Martha Rogers' nursing paradigm, the Science of Unitary Human Beings. The study was conducted by using one group pre-test, Post-test design at InbaIllam, Pasumalai, Madurai. The populations of the study were elderly residing at old age home with mild to moderate level of depression. Purposive sampling technique was used to select the sample. The study consisted of 40 elderly residing at InbaIllam, Pasumalai with mild to moderate level of depression A Pilot study was conducted on 10 of the non-study subjects at old age home, sellur to find out the feasibility and practicability for conducting the study. After testing the validity and reliability, the tool was used for data collection. The participants of the pilot study were excluded from the main study. Data gathered were analyzed by using both descriptive and inferential statistics.

6.2 MAJOR FINDINGS OF THE STUDY WERE

- Majority of the elderly 21(52.5%) were in the age group of 70-79 years, 16(40.0%) were in the age group of 60-69 years, 3(7.5%) belonged to the age group of more than 80 years.
- Regarding the sex, majority of the elderly 21(52.5%) were females and 19(47.5%) were males.

- When comparing the religion, most of the elderly 26(65.0%) were Hindus 12(30.0%) were Christians and remaining 2(5.0%) were Muslims.
- While discussing their personal income, 23(57.5%) were receiving government old age pension and the rest of them were dependent on the old age home for their living.
- When comparing the marital status, majority of the elderly 27(67.5%) were married and t 8(20.0%) were single, 4(10.0%) of them were widow / widower and 1(2.5%) were divorcees.
- While discussing the number of children, majority of the elderly 21(52.5%) had no children, 16(40.0%) had 1-2 children, and 3(7.5%) had more than 2 children.
- Based on the employment status of children of elderly majority of the elderly 21(52.5%) had no children, 5(12.5%) children are working in Madurai, 7(17.5%) are working in Tamil Nadu, 5(12.5%) are working in other states and 2(5.0%)of them are working abroad.
- Considering the nature of admission to the old age home, majority of the elderly 12(30%) were brought by friends, 10(25.0%) were by voluntary, 10(25.0%) were by others and the remaining 8(20.0%) were by family members.
- When comparing the duration of stay in the old age home 20(50%) were residing in old age home for more than 5yrs, 9(22.5%) were residing for a period from 1 -3 yrs, 7(17.5%) were residing for a period of 4 -5 yrs, and the remaining 4(10%) of them were residing for a period for less than a year.
- Regarding the performance of activities 40(100%) elders can perform all the activities of their own .None of them were dependent on others.

- With respect to the presence of illness majority 31(77.5%) were had medical illness and the remaining 9(22.5%) of them did not have any medical illness.
- While discussing the history of taking medications, majority 29(72.5%) were taking medications and the remaining 11(27.5%) of them were not taking medications.
- In the pretest majority 13(32.5%) had mild level of depression, 27(65.0%) had moderate level of depression. Where as in the posttest 6(15.0%) had no depression, 25(62.5%) of them had mild depression and 9(22.5%) had moderate depression.
- There was a highly significant difference in the mean scores between pretest and posttest in relation to depression among elderly.
- The post-test depression mean 6.73 was significantly lesser than the mean depression pre-test 9.35, this difference in mean is a true difference by the intervention Horticulture therapy and not by chance.
- There was a significant association between post- test level of depression and Age ($\chi 2$ = **10.02**), sex ($\chi 2$ = **8.07**) and History of illness ($\chi 2$ = **14.98**) among elderly in the old age home.
- There was no significant association between the post-test level of depression and the other socio demographic variables such as religion, personal income, marital status, number of children, Nature of admission, duration of stay in the old age home and Performance of activities.
- Horticulture therapy was effective in reducing the depression levels of the elderly in the selected old age home at Madurai.

6.3 CONCLUSION

The study findings brought out the following conclusion.

- There was a significant difference between mean pre-test and mean post-test depression scores among elderly in the selected old age home at P< (0.005) level of significance.
- There was a significant association between post - test level of depression age, sex and history of illness among elderly in the selected old age home.
- There was no significant association between the post-test level of depression and the other socio demographic variables such as religion, personal income, marital status, number of children ,Nature of admission, duration of stay in the old age home and Performance of activities at P<0.05 level of significance.

The study concluded that elderly in the selected old age home had depression. The daily intervention with Horticulture therapy for 45 minutes for 25 consecutive days among elderly had shown statistically significant difference in pretest and posttest level of depression. Thus Horticulture therapy was effective in terms of reducing the level of depression among elderly in the selected old age home. It indicates that Horticulture therapy can be used to all groups of elderly in terms of improving their quality of life. So the intervention Horticulture therapy is cost effective, non-invasive, non -pharmacological, free from side effects and highly feasible. The researcher concluded that it can be used as an effective intervention to improve the quality of life among elderly.

6.4 IMPLICATIONS FOR NURSING

The findings of the study have several implications on nursing practice, nursing administration, nursing Education and nursing research.

NURSING PRACTICE

- This study finding will create awareness among the nurses about the importance of non-pharmacological methods like Horticulture therapy and its uses in reducing depression and stress. This will help them to prevent various stress and depression related illnesses.
- It helps the nurse to understand the effectiveness of teaching elderly about Horticulture therapy and the findings of the study clearly points out that reduction in depression will improve the quality of life among elderly in the old age home and in the geriatric ward.
- It will help the nursing personnel to impart health Education to the people in the old age homes or in any community set up which strengthens the community psychiatry.

NURSING EDUCATION

- The concepts of complementary therapy like Horticulture therapy is the key component in Nursing and though they were already included in the nursing curriculum of Undergraduate and post-graduate programmes but focus can be extended to practical training and exposure on Horticulture therapy can be incorporated in community psychiatry.
- Nursing students should be made well acquainted with Horticulture therapy which can be made an integral part of geriatric nursing care and care of patients with depression.

NURSING ADMINISTRATION

- Nurse administrators can prepare the protocols and necessary policies to promote Horticulture therapy in the psychiatric and geriatric wards.

- The essential administrative support should be provided by the Nurse administration to conduct such activities of horticulture therapy in outreach programmes in the community thus strengthening the community psychiatry also.
- Nurse administrators must organize Continuing Nursing education program to the nurse's working in psychiatric, geriatric and communities to enable them to keep abreast with current knowledge regarding Horticulture therapy.

NURSING RESEARCH

- Extensive research must be conducted in this area to identify several effective methods of therapies.
- This study also brings about the fact that more studies need to be done at different settings, which are culturally acceptable, using various therapies.
- This study can be a baseline for future studies and this study can be inspired by other investigators to carry out further studies.

6.5 RECOMMENDATIONS FOR FURTHER STUDY

Based on the findings of the study, the recommendations offered for future research were

- A similar study can be replicated on a large sample to generalize the study findings.
- A similar study can be conducted with experimental research design having control group and experimental group.
- A comparative study can also be done to compare the effect of Horticulture therapy with other therapies.

- A similar study can be conducted by using a qualitative approach (Phenomenological) on feelings of elderly in the old age homes.
- A similar study can be conducted as comparative study between elderly residing in old age home and elderly residing in their homes.

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Appendices

APPENDIX I

LETTER SEEKING AND GRANTING PERMISSION TO CONDUCT THE STUDY AT INBA-ILLAM, OLD AGE HOME IN MADURAI.

From

Esther SheebaRani.D
II yearMSc (N) student,
College of Nursing,
Madurai Medical College,
Madurai.

To

The Principal,
The Theological seminary,
Madurai.

Through the Principalcollege of Nursing,Madurai Medical college ,Madurai.

Respected Sir,

Sub: Requesting Permission to conduct a dissertation study at Inbaillam,pasumalai,Madurai –Regarding.

As per the curriculum recommended byIndian Nursing Council andDr.MGR Medical University requirement all the M.Sc Nursing students are required to conduct a dissertation study for the partial fulfilment of the course.

I have selected a study topic **"A study to assess the effectiveness of Horticulture therapy on depression among the elderly in a selected old-age home in Madurai"**for my dissertation.

Hence I request you to consider my letter and permit me to conduct the study in your esteemed institution.

Thanking you

Yours obediently,

(ESTHER SHEEBA RANI.D)

Madurai
31.7.14

Forwarded
S.P
31/7/14
Principal
COLLEGE OF NURSING
Madurai Medical College
Madurai-20.

APPENDIX II

ETHICAL COMMITTEE APPROVAL LETTER

Ref. No. 68/E4/2/2014, **Govt. Rajaji Hospital,**
Madurai.20. Dated:26.02.2014

Institutional Review Board / Independent Ethics Committee.
Capt. Dr.B. Santhakumar, M.D., (F.M.,) deanmdu@gmail.com
Dean, Madurai Medical College &
Govt Rajaji Hospital, Madurai 625020. **Convenor**

Sub: Establishment-Govt. Rajaji Hospital, Madurai-20-
Ethics committee-Meeting Minutes- for February 2014
Approved list - Regarding.

The Ethics Committee meeting of the Govt. Rajaji Hospital, Madurai was held on 07.02.2014, Friday at 10.00 am to 12.00.noon at the Anaesthesia Seminar Hall, Govt. Rajaji Hospital, Madurai. The following members of the committee have attended the meeting.

1.Dr.V. Nagarajan, M.D., D.M (Neuro) Ph: 0452-2629629 Cell.No 9843052029 nag9999@gmail.com	Professor of Neurology (Retired) D.No.72, Vakkil New Street, Simmakkal, Madurai -1	Chairman
2. Dr.Mohan Prasad , M.S M.Ch Cell.No.9843050822 (Oncology) drbkcmp@gmail.com	Professor & H.O.D of Surgical Oncology(Retired) D.No.32, West Avani Moola Street, Madurai -1	Member Secretary
3. Dr. Parameswari M.D (Pharmacology) Cell.No.9994026056 drparameswari@yahoo.com	Director of Pharmacology Madurai Medical College	Member
4. Dr.S. Vadivel Murugan, MD., (Gen.Medicine) Cell.No 9566543048 svadivelmurugan_2007@rediffmail.com	Professor& H.O.D of Medicine Madurai Medical College	Member
5. Dr.S. Meenakshi Sundaram, MS (Gen.Surgery) Cell.No 9842138031 drsundarms@gmail.com	Professor & H.O.D of Surgery Madurai Medical College	Member
6. Mrs. Mercy Immaculate Rubalatha, M.A., Med., Cell. No. 9367792650 lathadevadoss86@gmail.com	50/5, Corporation Officer's quarters, Gandhi Museum Road, Thamukam, Madurai-20	Member
7. Thiru..Pala. .Ramasamy , BA.,B.L., Cell.No 9842165127 palaramasamy2011@gmail.com	Advocate, D.No.72.Palam Station Road, Sellur, Madurai -2	Member
8. Thiru. P.K.M. Chelliah ,B.A Cell.No 9894349599 pkmandco@gmail.com	Businessman, 21 Jawahar Street, Gandhi Nagar, Madurai-20	Member

The following Projects was approved by the committee.

Name of P.G.	Course	Name of the Project	Remarks
D. Esther Sheeba Rani	M.Sc., (Nursing) College of Nursing, Madurai Medical College, Madurai.	A study to assess the effectiveness of horticulture therapy on depression among the elderly in a selected old-age home in Madurai.	Approved

Please note that the investigator should adhere the following: She/He should get a detailed informed consent from the patients/participants and maintain it Confidentially.

1. She/He should carry out the work without detrimental to regular activities as well as without extra expenditure to the institution or to Government.

2. She/He should inform the institution Ethical Committee, in case of any change of study procedure, site and investigation or guide.

3. She/He should not deviate the area of the work for which applied for Ethical clearance.

She/He should inform the IEC immediately, in case of any adverse events or Serious adverse reactions.

4. She/He should abide to the rules and regulations of the institution.

5. She/He should complete the work within the specific period and if any

Extension of time is required He/She should apply for permission again and do the work.

6. She/He should submit the summary of the work to the Ethical Committee on Completion of the work.

7. She/He should not claim any funds from the institution while doing the work or on completion.

8. She/He should understand that the members of IEC have the right to monitor the work with prior intimation.

Member Secretary Chairman
Ethical Committee

DEAN/Convenor
Govt. Rajaji Hospital,
Madurai- 20.

To
The above Applicant
-thro. Head of the Department concerned

APPENDIX III

CONTENT VALIDITY CERTIFICATES

CERTIFICATE OF VALIDATION

This is to certify that the tool

SECTION A- Demographic Data

SECTION B- GERIATRIC DEPRESSION SCALE .

Prepared for data collection Esther Sheeba Rani.D, II year M.sc (N) student, College of Nursing, Madurai Medical College, Madurai, who has undertaken the study field on thesis entitled **"EFFECTIVENESS OF HORTICULTURE THERAPY ON DEPRESSION AMONG ELDERLY IN A SELECTED OLD AGE HOME IN MADURAI"** has been validated by me.

SIGNATURE OF THE EXPERT

NAME:

DESIGNATION: Dr. T. KUMANAN, M.D.(PSY),DPM
Reg. No. 42957
Professor of Psychiatry / Senior Civil Surgeon
Madurai Medical College / Govt. Rajaji Hospital
Madurai

DATE: 18.7.2014

CERTIFICATE OF VALIDATION

This is to certify that the tool

SECTION A- Demographic Data

SECTION B- GERIATRIC DEPRESSION SCALE .

Prepared for data collection Esther Sheeba Rani.D, II year M.sc (N) student, College of Nursing, Madurai Medical College, Madurai, who has undertaken the study field on thesis entitled **"EFFECTIVENESS OF HORTICULTURE THERAPY ON DEPRESSION AMONG ELDERLY IN A SELECTED OLD AGE HOME IN MADURAI"** has been validated by me.

N. Suresh

SIGNATURE OF THE EXPERT

NAME: N. SURESH KUMAR

DESIGNATION: Asst. Prof. Cum Clinical Psychologist

DATE: 15/7/14

N. SURESH KUMAR. M.A., M.Phil.
Asst. Prof. Cum Clinical Psychologist
Dept. of Psychiatry
Madurai Medical College
Madurai-20.

CERTIFICATE OF VALIDATION

This is to certify that the tool

SECTION A- Demographic Data

SECTION B- GERIATRIC DEPRESSION SCALE .

Prepared for data collection by Esther SheebaRani.D, II year M.sc (N) student, College of Nursing, Madurai Medical College, Madurai, who has undertaken the study field on thesis entitled **"EFFECTIVENESS OF HORTICULTURE THERAPY ON DEPRESSION AMONG ELDERLY IN A SELECTED OLD AGE HOME IN MADURAI"** has been validated by me.

G. Gomathy
SIGNATURE OF THE EXPERT

NAME: G. Gomathy

DESIGNATION: Assist Prof

DATE: 27/4/14 HOD Psychiatric Nsg Dept

ADDRESS: Madurai Apollo College of Nsg
Ellyarpathy Village
Madurai

CERTIFICATE OF VALIDATION

This is to certify that the tool

SECTION A- Demographic Data

SECTION B- GERIATRIC DEPRESSION SCALE .

Prepared for data collection by Esther SheebaRani.D, II year M.sc (N) student, College of Nursing, Madurai Medical College, Madurai, who has undertaken the study field on thesis entitled **"EFFECTIVENESS OF HORTICULTURE THERAPY ON DEPRESSION AMONG ELDERLY IN A SELECTED OLD AGE HOME IN MADURAI"** has been validated by me.

R. Jancy

SIGNATURE OF THE EXPERT

NAME: R. Jancy Rachel Daisy

DESIGNATION: Associate professor

DATE: 25.7.14

ADDRESS: C.S.I. Jeyaraj Annapackiam College of Nursing. Madurai

CERTIFICATE OF VALIDATION

This is to certify that the tool

SECTION A- Demographic Data

SECTION B- GERIATRIC DEPRESSION SCALE .

Prepared for data collection by Esther SheebaRani.D, II year M.sc (N) student, College of Nursing, Madurai Medical College, Madurai, who has undertaken the study field on thesis entitled **"EFFECTIVENESS OF HORTICULTURE THERAPY ON DEPRESSION AMONG ELDERLY IN A SELECTED OLD AGE HOME IN MADURAI"** has been validated by me.

SIGNATURE OF THE EXPERT

NAME: V. Jeseida Vedanayagi

DESIGNATION: Asso. Professor

DATE: 1/8/14

ADDRESS: Sacred Heart nursing College

APPENDIX IV

INFORMED CONSENT FORM

ஒப்புதல் அறிக்கை

பெயர்: **நாள்:**

எனக்கு இந்த செவிலிய ஆய்வினைப் பற்றிய முழு விவரம் விளக்கமாக எடுத்துரைக்கப்பட்டது. இந்த ஆய்வில் பங்கு கொள்வதில் உள்ள நன்மைகள் மற்றும் தீமைகள் பற்றி முழுமையாக புரிந்து கொண்டேன். இந்த ஆய்வில் தானாக முன்வந்து பங்கு பெறுகிறேன். மேலும் எனக்கு இந்த ஆய்வீலிருந்து எந்த சமயத்திலும் விலகிக் கொள்ள முழு அனுமதி வழங்கப்பட்டுள்ளது. என்னுடைய பெயர் மற்றும் அடையாளங்கள் ரகசியமாக வைத்துக் கொள்ளப்படும் என்றும் எனக்கு உறுதியளிக்கப்பட்டுள்ளது.

கையொப்பம்

APPENDIX V

RESEARCH TOOL – ENGLISH

SECTION A

SOCIO-DEMOGRAPHIC VARIABLES.

Instructions:

The investigator will ask the items listed below and place the tick mark (√) against the response given by the respondents.

1. Age ( )
    a. 60yrs to 69yrs
    b. 70yrs to 79yrs
    c. >80 yrs and above
2. Sex ( )
    a. Male
    b. female
3. Religion ( )
    a. Hindu
    b. Christian
    c. Muslim
    d. Others
4. Current source of personal income ( )
    a. Pension
    b. Govt. old age pension
    c. Dependent on old age home.
    d. Savings.
    e. Support from family.

5. Marital status ( )

a. Unmarried

b. Married

c. Widow

d. Divorced

e. Separated

6. Number of children

a. No children ( )

b. 1-2

c. More than 2

7. Employment of children

a. No children.

b. Working abroad ( )

c. Working in Madurai.

d. Working in Tamil Nadu.

e. Working in other state

8. Nature of admission to old age home ( )

a. Voluntary

b. Forced by family members.

c. Brought by friends.

d. Brought by others.

9. Duration of stay in the old age home ( )

a. Less than one year

b. 1-3 years

c. 3-5 years

d. >5 years

10. Performance of activities of daily living ( )

a. Independent

b. Partially dependent

c. Dependent.

11.History of illness ( )

a. Medical illness

b. Surgical illness

c. Psychiatric illness

d. Obstetric illness

12 Are you taking any medicine continuously? ( )

a. Yes

b. No

SECTION B

GERIATRIC DEPRESSION SCALE (GDS)

S.No	Questions	Yes	No
1.	Are you basically satisfied with your life?		
2.	Have you dropped many of your activities and interests?		
3.	Do you feel your life is empty?		
4.	Do you often get bored?		
5.	Are you in good spirits most of the time?		
6.	Are you afraid something bad is going to happen to you?		
7.	Do you feel happy most of the time?		
8.	Do you often feel helpless?		
9.	Do you prefer to stay at home, Rather than going out and doing new things?		
10.	Do you feel you have more problems with memory than most?		
11.	Do you think it is wonderful to be alive now?		
12.	Do you feel pretty worthless the way you are now?		
13.	Do you feel full of energy?		
14.	Do you feel that your situation is hopeless?		
15.	Do you think most people are better off than you?		

Scoring procedure

Each item of GDS is answered “Yes” or “No”. There are 10 items which indicate when answered yes, and 5 items which indicate depression when answered no. A total score is provided which consists of one point from each depressive answers. Non depressive answers are scored as zero and do not add to total score.

Interpretation

1. Normal: 0 to 4
2. Mild depression: 5 to 8
3. Moderate depression: 9 to 11
4. Severe depression: 12 to 15

APPENDIX VI

RESEARCH TOOL – TAMIL

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பிரிவு – ஆ

முதிர்ச்சியடைந்தோர் மனச்சோர்வு அளவுகோல்

கடந்த வாரத்தில் எப்படிப்பட்ட உணர்வோடு இருந்தீர்கள் என்பது குறித்து மிக சரியான விடையை தேர்ந்தெடுக்கவும்.

வ.எண	பொருளடக்கம்	ஆம்	இல்லை
1)	அடிப்படையாக உங்களது வாழ்க்கை குறித்து நீங்கள் திருப்திகரமாக இருக்கிறீர்களா ?		
2)	உங்களது பல வேலைகளையும் விருப்பங்களையும் விட்டுவிட்டீர்களா ?		
3)	உங்களது வாழ்க்கை வெறுமையாக இருப்பதாக உணர்கிறீர்களா ?		
4)	அடிக்கடி உங்களுக்கு சலிப்புணர்வு ஏற்படுகிறதா ?		
5)	பெரும்பாலான நேரம் நீங்கள் நல்ல உத்வேகத்தில் இருக்கிறீர்களா ?		
6)	ஏதோ உங்களுக்கு கெட்டது நிகழப்போவதாக பயப்படுகிறீர்களா ?		
7)	பெரும்பாலும் நீங்கள் மகிழ்ச்சி உணர்வு கொள்கிறீர்களா ?		
8)	அடிக்கடி உதவியற்ற உணர்வு ஏற்படுகிறதா ?		
9)	வெளியில் செல்லவும் புதியன செய்யவும் விரும்பாமல் வீட்டிற்குள் இருக்க விரும்புகிறீர்களா ?		
10)	பிற பிரச்சினைகளைக் காட்டிலும் நினைவு ஆற்றல் பிரச்சினை பெரிதாக இருப்பதாக உணர்கிறீர்களா ?		
11)	இப்பொழுது தனிமையில் இருப்பது அற்புதமாக இருப்பதாக நீங்கள் நினைக்கிறீர்களா ?		
12)	நீங்கள் இப்பொழுது கொஞ்சமும் உபயோகமற்றவறாக உணர்கிறீர்களா ?		
13)	முழு ஆற்றல் நிரம்பியவராக உணர்கிறீர்களா ?		
14)	உங்களது சூழ்நிலை நம்பிக்கையற்றதாக இருக்கிறது என உணர்கிறீர்களா ?		
15)	உங்களைக் காட்டிலும் பெரும்பாலோர் நன்றாக இருப்பதாக நீங்கள் நினைக்கிறீர்களா ?		

மனச்சோர்வுஅளவுகோல் மதிப்பெண்

மனச்சோர்வுஅளவுகோல்	மதிப்பெண்
1. இயல்பான நிலை	0-4
2. குறைவான மனச்சோர்வு நிலை	5-8
3. மிதமான மனச்சோர்வு நிலை	9-11
4. உயர்வான மனச்சோர்வு நிலை	12-15

APPENDIX VII

ENGLISH EDITING CERTIFICATE

CERTIFICATE OF ENGLISH EDITING

TO WHOM SO EVER IT MAY CONCERN

This is to certify that the dissertation **"A study to assess the effectiveness of Horticulture therapy on depression among the elderly in a selected old-age home in Madurai** "done by Mrs.EstherSheebaRani.D, M.Sc., Nursing II year student, College of Nursing, Madurai Medical College, Madurai - 20 has been edited for English language appropriateness.

(T. Venkatesh) 26.07.14

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APPENDIX VIII

TAMIL EDITING CERTIFICATE

CERTIFICATE OF TAMIL EDITING

TO WHOM SO EVER IT MAY CONCERN

This is to certify that the dissertation **"A study to assess the effectiveness of Horticulture therapy on depression among the elderly in a selected old-age home in Madurai** "done by Mrs.EstherSheebaRani.D, M.Sc., Nursing II year student, College of Nursing, Madurai Medical College, Madurai - 20 has been edited for Tamil language appropriateness.

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Pin 625605.

Signature 28.7.14

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T. KALLIPATTY - 625 601
THENI DIST

APPENDIX IX

INTERVENTION

Horticulture therapy was given to each group,45 mints once a day for 25 consecutive days in the morning .

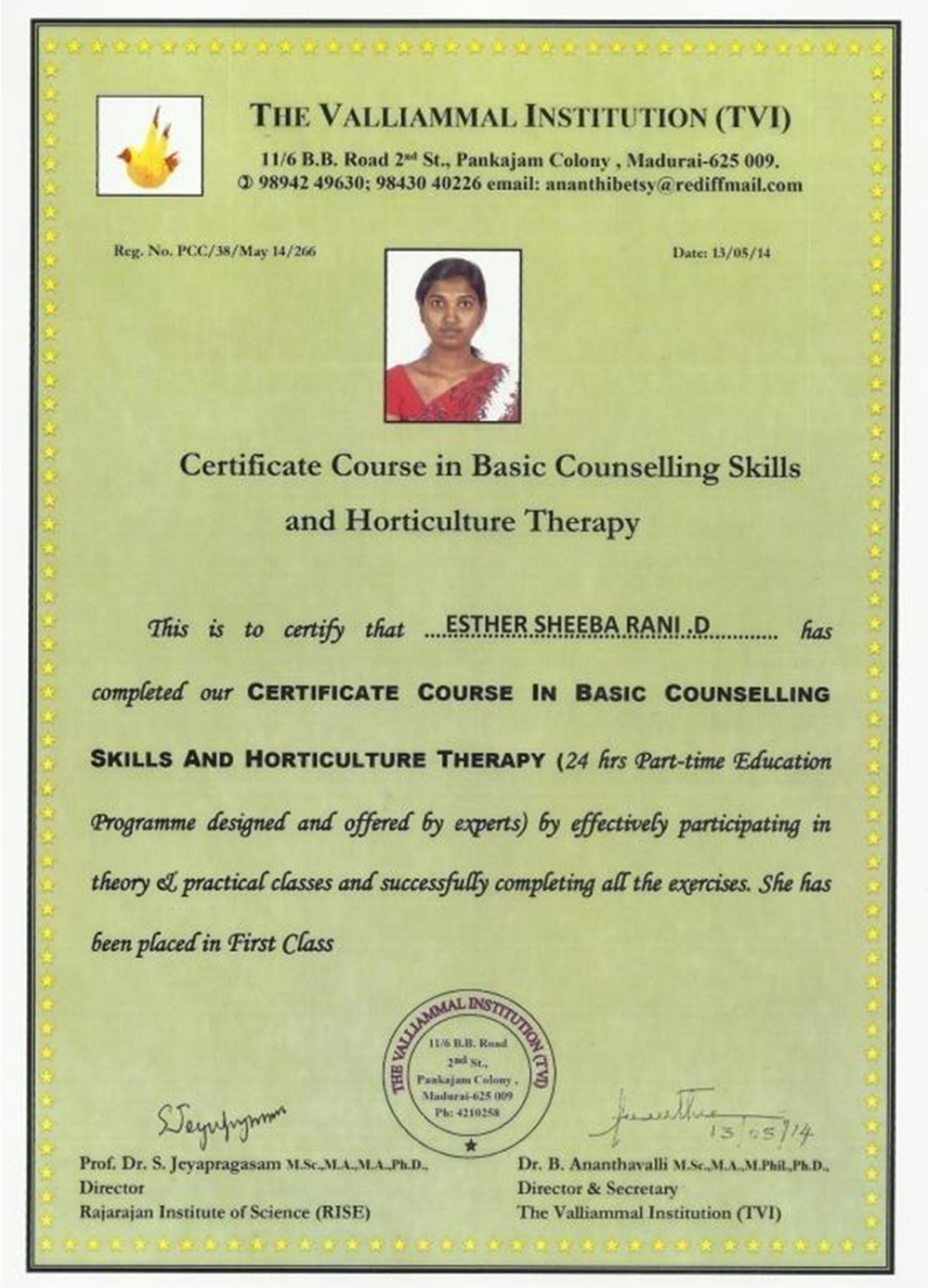
GROUP A	GROUP B	GROUP C	GROUP D
8 AM-9 AM	9AM-10 AM	10AM-11 AM	11AM-12 PM

- **Procedure of horticulture therapy.**

Steps	Activities	Duration (minutes)
1	**Assess the soil**	5
2	**Assess the plant** (for Dry petals, Dry leaves)	10
3	**Care the plant** (Watering the plants daily, Removing withered petals and flower stalks)	10
4	**Observe the plant(**Watching new tender leaves, buds and flowers, Counting the same and reporting to the researcher, walking in the garden**)**	10
5	**Share the experience with other participants**	10
	Total	45

APPENDIX X

TRAINING CERTIFICATE FOR HORTICULTURE THERAPY



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Reg. No. PCC/38/May 14/266

Date: 13/05/14

Certificate Course in Basic Counselling Skills and Horticulture Therapy

This is to certify that ESTHER SHEEBA RANI .D ..... *has completed our* **CERTIFICATE COURSE IN BASIC COUNSELLING SKILLS AND HORTICULTURE THERAPY** *(24 hrs Part-time Education Programme designed and offered by experts) by effectively participating in theory & practical classes and successfully completing all the exercises. She has been placed in First Class*

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13/05/14

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Dr. B. Ananthavalli M.Sc.,M.A.,M.Phil.,Ph.D.,
Director & Secretary
The Valliammal Institution (TVI)

APPENDIX XI

PHOTOGRAPHS

Researcher gives horticulture therapy for elders